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A comprehensive review of sport psychology doctoral dissertations completed between 1966 and 1985

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A COMPREHENSIVE REVIEW OF SPORT PSYCHOLOGY DOCTORAL DISSERTATIONS COMPLETED BETWEEN 1966 AND 1985

by

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APPROVAL PAGE

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The purpose of this secondary research review was to examine specific characteristics of sport psychology doctoral dissertations produced in graduate programs in the United States between 1966 and 1985. Content analysis research was employed to investigate the following: (a) psychological construct addressed, (b) age, gender and group affiliation of the subjects, (c) sport and/or physical activity associated with the research, (d) instrumentation used, and (f) research strategy employed.

Six-hundred eighty dissertation abstracts classified as "social-psychological" studies were examined initially. Thereafter, dissertations addressing only sociological constructs were eliminated from further study. Coding categories were then established for each characteristic. Following pilot coding, data were collected. One-way frequency distributions and crosstabulations were applied to the data. Major findings were:

1. Most studied constructs were personality and motivation,

2. Most frequently studied subjects were males aged 19-23 and young adults aged 24-40; students and athletes accounted for the majority of group affiliations studied,

3. Team sports, individual sports, and motor tasks were the most represented sports/physical activities,

4. Most utilized research strategies were descriptive and quasi-experimental,

5. Most used psychological instruments were Cattell's 16 Factor Personality Questionnaire and Speilberger's State-Trait Anxiety Scale; most used performance measure was "game stats".

The fragmented and diffused picture of doctoral dissertation research found by this review suggested a need for more coordinated and comprehensive studies. Also, reconsideration of the purpose(s) of the dissertation was proposed.

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CHAPTER I

INTRODUCTION

As a part of higher education, physical education has had a rich and diverse history. The field developed as an academic discipline in higher education from ongoing concerns about good health and fitness as functions of vigorous activity and also from the commitment of educators and scholars to the establishment of a scientifically-based body of knowledge to undergird the field of study. Kroll (1982) presented a thorough history of physical education in higher education in his book Graduate Study and Research in Physical Education. He attempted to show that the medium through which physical education was able to grow and expand, namely professional education, was the same medium which kept physical education from developing its own unique body of knowledge. Kroll did not suggest "severing the cord" from education, but rather develop a better understanding of the concepts unique to physical education through faculty and student research. "An academic discipline must... produce new knowledge in order to forge a sound knowledge-structure and bid for recognition as an accepted member in the community of scholars" (1982, p. 328).

In the past two decades there has been phenomenal growth in the content and methodologies associated with physical education. This has been associated by some people with the increased emphasis on specializations within physical education and, more specifically, within graduate programs of physical education. King (1987) explained:

> In the early 1940's, courses of study for the doctoral degree in physical education uniformly emphasized a broad scope of coursework. Today the emphasis has changed dramatically. The major emphasis is to provide in-depth education in some particular specialized sub-area of physical education. (p.6)

One of the recently developed specializations of physical education upon which the present study is focused is referred to as sport psychology. Gill (1986, p. 3) defined

sport psychology as "the branch of sport and exercise science that seeks to provide answers to questions about human behavior in sport." Because it is called "sport" psychology, some may feel it applies only to athletes in competitive situations. Gill stated:

> As used here, the term sport is not restricted to highly organized competition or to highly skilled athletes. Indeed, sport activities range from aerobic dance classes to the Olympic games. . . as well as professional athletes. Sport and exercise science also extends to skilled movements and physical activities that we seldom consider "sports," such as movement efficiency with an artificial limb or exercise in the weightless environment of space. (1986, p. 4)

Published works by leaders in physical education and sport psychology have provided the primary data that constitute the body of knowledge of sport psychology. However, graduate student theses/dissertations, customarily considered an integral part of the body of knowledge of any discipline, have gone relatively unnoticed. Exceptions are the papers derived from the graduate student's research which have been presented at conventions or symposia or have been rewritten for publication. Davinson (1977), in Theses and Dissertations as Information Sources, discussed both the valuable information one can extract from a doctoral dissertation and its subsequent use as a research tool. He cited some enlightening viewpoints by fellow scholars on the merits of the doctoral dissertation.

> Theses constitute a form of academic literature which the scholar cannot ignore. By its nature a thesis is at very least a serious piece of work carried out under scholarly direction". (Biboul, in Davinson, 1977, p. 14)

Ottervik and Hallberg (in Davinson, 1977) pointed out that doctoral dissertations should be more readily available to researchers because they contain an "important body of scholarly and scientific material" (p. 138).

Gillis (1986) demonstrated that doctoral dissertations contain revealing data which could present a clearer picture of the past, present and future status of subdisciplines in physical education. Gillis examined abstracts of 5,344 doctoral dissertations completed by students in departments of physical education in the United States from 1964 to 1983. Through content analysis, she determined the academic speciality and research strategy of each dissertation along with other descriptive

characteristics. One would have to go back 40 years to Cureton's (1947) presentation in the Research Quarterly to locate a similiar albeit less extensive study of characteristics of doctoral dissertations in physical education.

The investigation reported here was designed to yield information about the specific characteristics of sport psychology as reflected in sport psychology dissertations. It is regarded as one type of secondary research in that it did not generate new/original data. Rather it attempted to illuminate the status of dissertation research through the organization and synthesis of two decades of inquiry.

Statement of the Problem

The purpose of this investigation was to critically examine the substantive content, population characteristics, and research methods of doctoral dissertations in sport psychology produced in graduate programs of physical education in the United States between 1966 and 1985. Answers were sought to the following framing questions:

1. What subject matter associated with psychology did students of sport psychology find to be relevant to sport? More specifically:

    a. What were the substantive topics of psychology studied in the sport psychology dissertation research?

    b. How were the topics of psychology distributed across the 20 year period of sport psychology dissertations being studied?

2. What were the characteristics of the subject populations studied in the sport psychology dissertation research? More specifically:

    a. What were the characteristics of the subject populations studied with respect to age, gender, and group affiliation?

    b. Did studies in different topics of sport psychology focus on specific subject populations?

    c. How were the different characteristics of the subject populations distributed across the 20 year period of sport psychology dissertations being studied?

3. What were the sport and/or physical activities studied in the sport psychology dissertation research? More specifically:

a. What was the specific sport or physical activity used in the study?

b. Did the various sport psychology dissertations focus on specific sports or physical activities?

c. How were the sport/physical activities distributed across the 20 year period of sport psychology dissertations being studied?

4. What research methodologies characterized sport psychology dissertations? More specifically:

a. What were the predominant research strategies utilized in the sport psychology dissertation research?

b. How were the research strategies distributed across the 20 year period of sport psychology dissertations being studied?

c. Did the various sport psychology topics use specific research strategies?

5. What was the nature of instrumentation employed in the sport psychology dissertation research? More specifically:

a. What standardized psychological instruments were used?

b. What performance measures were used?

c. What was the proportion of psychological instruments used in comparison to performance measures used?

d. What proportion of the psychological instruments and performance measures were sport specific?

6. Are any implications evident with respect to the field of study of sport psychology from the answers obtained to the above questions?

Assumptions

The following statements represent ideas that were accepted as "given" and, therefore, were not tested as a part of the research.

1. Gillis' investigation (1986) constituted valid research and was an appropriate point of departure for the present study (see Appendix A, Gillis' Procedures).

2. The operational definitions established for use in the coding of data represent an appropriate and reliable means of examination of the data.

Definition of Terms

The terms that follow were definied for the purpose of interpretation in the proposed investigation:

Substantive Topic: The area(s) of sport psychology addressed (see Appendix I, Psychological Constructs).

1. Aggression
2. Anxiety
3. Attention
4. Attitudes
5. Behavior Modification
6. Group dynamics
7. Intervention
8. Motivation
9. Personality

Population Characteristics: The age, gender, and group affiliation of the subjects identified in the dissertation research.

1. Age: preschool (0-5), elementary (6-12), junior high school (13-15), senior high school (16-18), college (19-23), young adult (24-40), middle aged (40-60), and older adult (60 and up).

2. Gender

3. Group Affiliation: The group population from which the subjects were drawn, e.g., physical education class member or professional athlete.

Sport and/or Physical Activity: The sport, e.g., rowing, basketball, football, or physical activity, e.g., performance on a bicycle ergometer or performance on a fitness test, employed in a given study.

Research Strategy: The research methodology employed in the dissertation research. Gillis' (1986, pp. 122-126) adaptation of research strategies identified by Isaac and Michael (1981) include:

1. Historical Research. To reconstruct the past systematically and objectively by collecting, evaluating, verifying, and synthesizing evidence to establish facts and reach defensible conclusions, often in relation to particular hypotheses.

2. Descriptive Research. To describe systematically the facts and characteristics of a given population or area of interest, factually and accurately.

3. Case and Field Study Research. To study intensively the background, current status, and environmental interactions of a given social unit: an individual, group, institution, or community.

4. Causal-comparative Research. To investigate possible cause-and-effect relationships by observing some existing consequence and searching back through the data for plausible causal factors.

5. True Experimental Research. To investigate possible cause-and-effect relationships by exposing one or more experimental groups to one or more treatment conditions and comparing the results to one or more control groups not receiving the treatment.

6. Quasi-experimental Research. To approximate the conditions of the true experiment in a setting which does not allow the control and/or manipulation of all relevant variables.

7. Action Research. To develop new skills or new approaches and to solve problems with direct application to the classroom or working world setting.

8. Philosophical Research. To examine theoretical constructs with the objective of thorough understanding of the nature of the constructs.

9. Product Development. To develop a product or procedure that can be used in classes of settings.

Scope of the Study

The boundaries for this inquiry were established by the following:

1. Only sport psychology dissertations completed in graduate programs of physical education in the United States from 1966 to 1985 were examined.

2. The 579 dissertations identified by Gillis (1986) which fell under the socio-cultural/behavioral aspects of physical education from 1966 to 1983 constituted the target population of dissertations.

3. In addition to Gillis' (1986) list, 101 sport psychology dissertations for the years 1984 and 1985 were studied. These were identified in accord with Gillis' established procedures.

Significance of the Study

Secondary analysis of original data constitutes a relatively new form of research methodology. Light and Pillemer (1984) pointed out the necessity for researchers to investigate what conclusions have emerged from past research in their field in order to establish a more solid base on which to build future research. They proposed that an accumulation of knowledge in a field of study is not beneficial until some order, or "summing up" is applied to that knowledge. Adding to this, they stated another purpose of a research review as "not to summarize outcomes but rather to stimulate improvements in research or in programs... [this] gives newcomers to a field and nonspecialists a broad picture of what the issues are" (p. 132).

The potential to know more is just being explored in physical education research. However, as Light and Pillemer pointed out, "knowing more" may be based on systemmatically surveying what has been the focus of past research. Doctoral students' research marks the beginning of the scholarly efforts they customarily continue in their later professional roles. As new scholars in the field, they may determine the future of physical education through their systematic studies. Gillis' (1986) examination of doctoral dissertations in physical education over a twenty year period revealed some interesting trends in dissertation research.

Accepting the premise that up-and-coming scholars are highly involved in their field of study and, further, that they direct their research to current/popular issues, doctoral dissertations in sport psychology may offer important information about its

future as a subdiscipline. An analysis of what has been the focus of doctoral research and the methodologies associated with the inquiries may offer insights into the nature of sport psychology. More important, specific answers to the questions of topic, research methodology, sport/physical activity context, subject populations, and instrumentation may help direct future research in sport psychology.

Summary

The short discussion of physical education in higher education and the emergence of sport psychology in recent years underscored the writers' primary interest in the field of study. Further, the promise of a secondary review for suggesting direction for the subdiscipline of sport psychology generated specific research questions for consideration. Specific boundaries, operational definitions and the importance of the present study were addressed.

CHAPTER II

REVIEW OF RELATED LITERATURE

The present research project examined selected characteristics of sport psychology dissertations utilizing content analyses. This chapter calls attention to information from areas of interest relevant to the topic under investigation. The first section presents a brief historical overview of sport psychology in the United States. In view of the time period addressed in this study, special consideration is directed to the last twenty years of sport psychology research. In an attempt to call attention to the capabilities of content analysis as a research tool, the second section introduces the reader to the technique of content analysis and presents selected examples of past research in physical education and related areas that employs the technique. Finally, in as much as dissertations focusing on sport psychology make up the database for this project, the final section addresses the dissertation and its role in graduate study.

History of Sport Psychology in the United States

Sport psychology is a relatively young area of specialization in physical education. Its origins can be traced to the turn of the century. Wiggins (1984) reported that various writings appeared in the 1890s and early 1900s telling of the "psychological advantages" of physical education and physical activity. Most of the early works were based on authors' personal opinions. One of the first empirically based studies in sport psychology was carried out by Fitz in 1895. His research was concerned with reaction time, a focus of study that was considered to be a part of sport psychology at the time. Today, studies about reaction time are more closely allied with the area of specialization in physical education referred to as motor learning and control.

The slow process of differentation between motor learning and sport psychology may have had its roots in early research conducted by Griffith at the University of Illinois. Called the "Father of Sport Psychology", Griffith studied athletes' personalities quite extensively in the 1920s and 1930s. His classic book, The Psychology of Coaching, was published in 1929. Following his work, sport psychology lay dormant for a number of years until Henry and his students revitalized interest in the study of phenomena associated with sport psychology in the 1940s. Many of the students associated with Henry became leaders in sport psychology as it gained popularity within physical education. Individuals such as Alderman, Carron, Marteniuk, Schmidt, and Ryan are some of Henry's students who became prominent leaders in sport psychology.

Lawther, physical educator and varsity coach at The Pennsylvania State University, added impetus to increasing interest in sport psychology with his book Psychology of Coaching, published in 1951. The text addressed such psychological concepts as feelings and emotions, personality, arousal, crowd effect, and individual differences in emotional response. Although referred to as "purely a speculative foray into some psychological aspects of coaching, rather than a scholarly review of relevant research" (Iso-Ahola & Hatfield, 1986, p.24), it was a precursor to later systematic inquiry in sport psychology.

Interest in so-called "psychological foundations" of sport and physical activity, such as personality, aggression, and motivation increased by individuals with either a psychology or physical education degree as well as persons who had a sports background (Alderman, 1980). This was reflected in the texts published in the 1960s and early 1970s. For example, Johnson's Science and Medicine of Exercise and Sports (1960), Ogilvie and Tutko's Problem Athletes and How to Handle Them (1966), and Moors' The Psychology of Athletic Coaching (1970) exemplified the trend in sport psychology research away from motor learning. With the formation of the North American Society for the Psychology of Sport and Physical Activity (NASPSPA) in 1967 and the beginning of its publication of the Journal of Sport Psychology in 1979, sport psychology was recognized as an sub-field of specialization within physical education

with continued strong ties to motor learning. Both specializations had their roots in psychology, but each had something unique to contribute to research in physical education. Researchers in motor learning were interested in "conditions that are related to improvement in learning (and performance)" (Singer, 1980, p. 12). Sport psychology researchers "observe, describe, and explain the various psychological factors that influence diverse aspects of sport and physical activity" (Silva & Weinberg, 1984, p. 1).

In spite of the attractiveness of sport psychology within physical education, motor learning and performance continued to be the most popular topic of interest. Specializations within sport psychology listed in a 1976 NASPSPA Newsletter were (a) motor control, (b) motor development, (c) motor learning, (d) sport psychology, (e) sport sociology, and (f) other. A survey of the Society members in 1976 showed only 25% of the 161 members with primary interest in sport psychology (Spirduso, 1976, p. 2). However, only eight years later the concerns of the membership changed dramatically; over 56% out of 490 members indicated their specialization in sport psychology (Wrisberg, 1984).

Initial research in sport psychology was totally dependent on the parent discipline of psychology. Theoretical bases underlying studies in the sport setting were "borrowed" from psychology. One research goal was the eventual establishment of sport psychology theories. As Alderman (1980) acknowledged:

> Knowledge of behavior outside or apart from sport can carry us only so far in understanding behavior within or as a part of sport. That the specificity of sports conditions (and their effect on behavior) will eventually force us to establish new frameworks or models within which sports behavior itself will be identified, assessed, and explained. (p. 4)

NASPSPA members, as initiators of a defined field of research in sport psychology, hoped to be one of the forces behind the establishment of "new frameworks". The position statement of NASPSPA emphasized this view.

> The emphasis of our society. . . has been upon scholarship rather than service or pedagogy. The membership is primarily made up of individuals desiring to expand a body of knowledge. Our annual conferences focus exclusively upon scholarly research and/or theories rather than on administrative or political problems. (Kirkendall, 1975, p. 1)

Changing interests about the issues scholars of sport psychology should be addressing dominated the NASPSPA conferences of the early 1980s. A number of NASPSPA members called for the organization to "expand its constitution to include professional activities" (Schultz, 1984, p. 1). The notion of "applied" sport psychology was thus introduced. However, many individuals were uncertain of the feasibility of professional practice as an appropriate activity for sport psychologists rooted in physical education. Opinions for and against professional practice were discussed at numerous professional meetings and reported in newsletters. Some scholars argued that applied research would have a negative impact on the theory development of sport psychology. Others maintained that coaches and athletes needed and desired the service a sport psychologist could offer alleging that applied research was as necessary as theory building. However, as Dishman (1983) pointed out:

> It is not clear to what extent contemporary sport psychology possesses a clearly defined and reliable technology for either empirical testing of applied questions or for intervention in applied settings (p. 127).

Dishman voiced the opinion of a majority of the NASPSPA membership who voted against the altering of the stated purpose and function of the organization to include applied sport psychology as a focus of it concern. Keogh, a professor in the department of kinesiology at UCLA, added another perspective to the issue:

> I recognize that very real-world problems exist in relation to providing psychological services to sport participants and sport instructors-managers. [However] I am puzzled by the line of reasoning stated by the committee that leads them to the conclusion that NASPSPA members are qualified to provide psychological services. . . We may be sports but we clearly are not psychologists. (1984, p. 3)

The reaction of some members to the decision by NASPSPA led to the establishment of a new organization, The Association for the Advancement of Applied Sport Psychology (AAASP) in 1986. Silva, the president of AAASP, explained the purpose of AAASP: "promotion of sound applied research, theory development, intervention workshops. . . guidelines in ethical and professional matters. . . standards for the provision of psychological services in sport and exercise settings." (1986, p. 1).

To date, minimal strides have been made toward the development of a theoretical structure of the body of knowledge in sport psychology. As Gill wrote in 1986, "Sport psychologists are only beginning to provide answers to some of our many questions about sport and exercise behavior" (p. 11). Iso-Ahola and Hatfield (1986) pointed out some of the reasons for the slow emergence of sport psychology as a recognized subdiscipline of physical education.

> Theoretically the psychological study of sports can be characterized as the testing of social psychological hypotheses (and theories, on rare occasions) mostly in motor performance contexts. Due to lack of its own theoretical foundation, sport psychology appears to be a subdiscipline of general social psychology rather than a field of its own. Thus, the emergence of sport psychology as an academic discipline of its own critically depends on the development of theories and theoretical frameworks peculiar to the field. The name of the field alone begs such theoretical developments, because it implicitly claims that there is something unique about sports psychologically. This uniqueness means that the antecedents and consequences of sports behavior and performance may not be accounted for by general principles, laws and terms of general psychology. (p. 40)

Except for some speculative/explanatory articles and brief historical overviews, questions addressing the future of the subdiscipline, given its past, have received limited attention in the published literature. Landers (1983) presented an historical overview of research done in sport psychology since 1950 and revealed a need for more theoretical research.

Landers, Boutcher, and Wang (1986), in a study similiar to the present study, examined manuscripts submitted to the Journal of Sport Psychology, over a seven year period to "capture some of the changes that have occurred in the field of sport psychology over this time period" (p. 149). The results indicated an increase over the years in the use of female subjects, adolescents, and older adults. The researchers called attention to the need for more multivariate statistical techniques, theory testing, and reports on multiple studies. The article by Landers et al. was unique in that it was the first to try to systematically report not only what psychological constructs had been researched in sport, but also, the population characteristics and the methodological approaches utilized in the sport psychology research. The effect was important in helping to establish whether or not there was a systematic approach to studying

psychology in a sports context. Iso-Ahola and Hatfield explained:

> Self-criticism is typical of scientific fields, especially in the early stages of their development. Invariably, this self-criticism stems from the imbalance between theory building and empirical accumulation of data. Whenever inductive reasoning . . . becomes the dominant mode in the research process, self-criticism is warranted because the emphasis on inductive reasoning is bound to lead to undirected accumulation of data. This is especially evident in the sport psychology literature. (1986, p. 36)

Morgan, director of the Sport Psychology Laboratory at the University of Wisconsin in Madison, saw the field of sport psychology as being in "a state of embryonic development" (Monahan, 1987, p. 208). Morgan called for a more solid and specialized degree program for future sport psychologists. Eugene Levitt, a psychology professor at Indiana University Medical Center proposed certification of sports psychologists who work in selected applied areas of sport psychology (Monahan, 1987, p. 211). It is evident that certification is one of the issues facing the leaders in sport psychology.

Another important issue is the promotion of applied research in contrast to theoretical research in sport psychology. However, the crux of the issue appears to reside in a single question, "Are applied research and theoretical research mutually exclusive?" Harris, a professor of physical education at The Pennsylvania State University, offered an answer to this question and reflected on the future of sport psychology:

> Applied research is not less scientific nor does field based research need to be divorced from theory. Sport psychology is just now at the stage of generating relevant, meaningful theories. . . Certainly I would like to see more theory building. This will come as we train graduate students appropriately and guide them into a productive research career. (1987, pp. 11-12)

In sum, the writer's review of literature addressing sport psychology revealed a young albeit strongly emerging area of study. The future direction of sport psychology would appear to lie not only in the research interests and expertise of its current leaders, but also in the curiosity, creativeness and research capabilities of those currently entering doctoral study in the field.

Content Analysis

Traditionally classified as descriptive research, content analysis inquiries systemmatically examine information, be it written or spoken, so that the data from such an examination might be categorically classified and evaluated. It seeks to provide a description and interpretation of a situation or condition that may not otherwise be readily describable. For example, when the variables under investigation are too imprecise for measurement by an objective instrument or by human judgement, they can be characterized by content anaylsis.

The roots of content analysis lie in the social sciences, most predominantly in studying mass communication. Content analysis procedures have become much more sophisticated since 1952 when Berelson reviewed and codified the field of communication in his book, Content Analysis in Communications Research. He defined content analysis as "a research technique for the objective, systematic, and quantitative description of the manifest content of communication" (1957, p. 18). Since then, the capabilities of the content analysis procedure have been extended to virtually every area of resarch. Such increased growth may be explained by the fact that the conception of content analysis evolved from Berelson's early emphasis on description to its present day focus on both description and inference. Holsti (1969) defined content analysis as "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (p. 14). Another, more complete definition was offered by Krippendorf (1980): "Content analysis is a research technique for making replicable and valid inferences from data to their context" (p. 21). Krippendorf's definition adds the necessary criterion of reliability. He explained:

> Any instrument of science is expected to be reliable. More specifically, when other researchers, at different points in time and perhaps under different circumstances, apply the same technique to the same data, the results must be the same. This is the requirement of content analysis - to be replicable. (p. 21)

Krippendorf (1980) categorized the design of content analysis research into four components: (a) data making, including unitization, sampling, and recording, (b) data reduction, (c) inference, and (d) analysis (p. 52). As a function of data making,

unitizing is the procedure that separates the phenomenon under investigation into distinguishable and discrete units of analysis. Sampling reduces a large volume of data into data more managable. Recording involves trained individuals who code the data according to predefined categories until an established reliability quotient is obtained, thus establishing the replicability of the research.

The second component of content analysis is data reduction. This step simply allows the researcher to work with the data in such a way that it can be thoroughly analyzed. The third component of content analysis, inference, "consumes all the knowledge a content analyst may have about the way data are related to their context and this knowledge will be strengthened with inferential successes" (Krippendoriff, 1980, p. 55). The final component, analysis, identifies any evident patterns in the data.

A number of researchers in physical education and related fields of study have used content analysis. A brief description of the various categories revealed through their work may aid the reader in understanding the types of information sought through content analysis. A recent work was reported by Gillis in 1987. She examined 5,344 doctoral dissertations written in physical education between 1964 and 1983. Units for analysis included (a) academic speciality, (b) research method, (c) doctoral program degree, (d) college from which degree was earned, and (e) major advisor. Results of her analysis showed functional effects to be the most common academic speciality and descriptive research the most frequently used research method. Other findings were that the Doctor of Philosophy degree was most awarded, the greatest number of degrees were obtained at institutions of high prestige, and the majority of major advisors chaired less than five dissertations.

Tritschler (1985) examined a sample of seven American physical education research journals to analyze selected aspects of statistical use, e.g., complexity of the data analyzed and how the results were reported. Her analysis revealed descriptive research to be the research method utilized in a majority of the articles analyzed, inferential statistics using a p value of .05 were reported in 98% of the studies, and multivariate statistics were used in 25.3% of the articles. Also, the investigator

reported little help was offered to the reader in understanding the statistics and little justification was given for using a particular statistical technique.

Sliepcevich, Keller and Sondag (1986), as a part of the Readership Assessment and Planning Project (RAPP), reviewed Health Education journals from 1984 and 1985, analyzing 127 articles in all. Their units for analysis included (a) the focus of the covers, (b) selected descriptors of articles, (c) articles by settings, (d) topics and selected types, (e) statistical techniques used, (f) employment setting of the authors and their academic rank, (g) regular and special features, (h) teaching ideas, (i) special issues, and (g) advertising. Results indicated thirteen health topics accounted for 65% of the 127 articles, 75 of the articles were non-research oriented, and of the articles that were research oriented, comparative statistics was the technique utilized most frequently.

King and Baker (1982) categorized theses and dissertations which they determined, through content analysis, to be directly pertinent to teaching physical education. Their resulting scheme of categorization for research in physical education was broken down into four major units: (a) professional, (b) scientific foundations, (c) socio-cultural foundations, and (d) research methodology. These were further subdivided into more specific topics for easier classification. Results were then programmed and placed on computer as a source of reference for future researchers with an interest in teaching physical education.

Hildreth (1979) used content analysis in examining sexism in elementary physical education textbooks. She found the sex of the author to be influential in what was included in the textbook especially where teacher pictures and children pictures were used. Similarly, Axelson (1979) examined elementary school physical education textbooks to determine the various ways "competition" had been addressed. Results showed that the authors differed in their approach to presenting the notion of competition in their textbooks and 90% of the textbooks analyzed incorporated guidelines for the teacher.

Groves, Heekin, and Banks (1978) analyzed the International Journal of Sport Psychology to isolate possible trends in sport psychology. The units in this study were

(a) author by country, (b) author by specialization, (c) methods of data collection, (d) characterization of major articles, and (e) citations. Their analysis revealed performance and personality as the most common concerns in the articles reviewed. Also, the majority of authors were from the United States with a speciality in physical education, and the majority of articles were data-based in contrast to being position papers.

VanDoren and Heit (1973) content analyzed the Journal of Leisure Research to report the types of research methodology being utilized in leisure research. They found the majority of articles were produced by sociologists and researchers from recreation-related departments. The investigators also reported regression and correlation as the most frequently used statistical methods. Finally, they found that one-third of the articles analyzed addressed either a research technique, method, theory, or social change directly related to leisure or recreation.

In order to characterize changing patterns of interest in sport over different time periods, Hart (1967) content analyzed Outing (1889-1923), Sportsman (1927-1937), and Sports Illustrated (1954-1965). Results revealed that interest in sport does differ during different time periods, and these changes in pattern "are related to other culturally defined changes occurring within the country at specified time intervals" (pp 141-142).

Other studies in physical education and related fields used research techniques based on the content analysis design but without strict reference to reliability considerations. Condor and Anderson (1984) investigated the amount of coverage given black athletes in Sports Illustrated over the twenty year period from 1960 to 1981. They coded the magazines at seven year periods, examining only feature articles in the magazines. The results indicated an increase in coverage began some time between 1974 and 1981, with a significant increase in coverage by 1981.

Reid and Soley (1979) conducted a similiar study of the coverage of women's sports in Sports Illustrated for the years 1956 to 1976. They focused on the feature articles of the first issues of each month using five year intervals for their data base. Results revealed no change from 1956 to 1976 in the percentage of articles covering women's sports. Lau and Russell (1980) investigated the attributional statements

reported in eight daily newspapers by major sports figures. They analyzed thirty-three major sporting events in the fall of 1977 including the World Series and various college and professional football games. Results showed a total of 594 different attributional statement from 107 newspaper articles.

This review of the application of content analysis to a variety of topics has revealed its promise as a research tool. It has been used effectively in examining, describing, and interpreting data which otherwise may never have been systemmatically analyzed.

The Doctoral Dissertation

Graduate education in the United States was, and still is, based on the German model of education, especially at the doctoral level. Berelson stated years ago that "[Graduate school] has become the major home of research and scholarship, and the training thereof" (1960, p. 1). Such a remark may be even more descriptive of graduate study today. One of the basic elements of the model has been the requirement of contributing new knowledge through original research in the form of a dissertation. The process of producing a research dissertation is considered by most members of the profession as an important educational experience for the student. Such an endeavor requires the student to show a level of competence in the scientific processes of problem solving. The dissertation also serves as a vehicle for reporting the results of an investigation, first through the oral defense of the dissertation, and later through professional presentations and publication of all or part of the investigation.

The following review of the literature addressing the doctoral dissertation was primarily directed to two areas of concern: (a) publication of the dissertation and, (b) dissertations as sources of new knowledge. Neither however was mutually exclusive from the other.

The writer noted a general consensus in the literature that information gained through doctoral dissertation research can make an important contribution to knowledge, only when such knowledge is communicated by presentation or publication.

In an article addressing the format of the dissertation, Thomas, Nelson and Magill (1986) wrote:

> Subsequent publication of that knowledge through refereed journals is an important step to accomplish . . . An unpublished thesis/dissertation remains information that is the exclusive domain of a few individuals . . . A vital part of the research process is the dissemination of knowledge. (pp. 119-123)

However, Porter et.al., (1982) reported that only one-third to one-half of dissertations produced each year in the science doctorates are published. The disciplines to which they referred were physics, biochemistry, zoology, electrical engineering, psychology, and sociology. In addition, the authors stated that new PhDs who failed to publish within two years subsequent to the awarding of the degree were unlikly to publish later. Reasons for not publishing varied: (a) lack of interest in research, (b) lack of time due to new job time constraints, and (c) having a dissertation not worthy of publication.

In a survey of faculty, alumni, and doctoral candidates at the University of Michigan, over half of the alumni reported they had published their dissertations (U. of Michigan, 1976). However, of these same respondents, more than half felt the need for some change if there was to be increased publication of dissertation research. One-third indicated that publication was not and should not be an objective of the dissertation. Addressing the concept of the dissertation as contributing to new knowledge, the majority of respondents felt such a goal to be of low priority. Rather, they saw the research as "a demonstration of the capability of making future contributions to knowledge" (p. II-2). The review committee concluded that "lack of publication of the dissertation is a problem of the conception of the nature of the dissertation itself" (p. II-7).

Sutton (1979) surveyed 120 doctoral degree recipients in physical education concerning their research productivity following completion of the degree. Eighty percent of the sample successfully published since completing their studies: sixty-two percent of those who published indicated that the work was related to their dissertation

topic. The major reason cited for not publishing was the lack of time due to job responsibilities.

Educators as far back as Berelson (1960) suggested that many of the dissertations go unpublished because of the constraints produced by following the original format of the dissertation. Such a style/format is not conducive to the many restrictions of the published manuscripts. Thus, the dissertation author is required to rewrite his/her work for purposes of publication.

Thomas, Nelson and Magill (1986) pointed out that many doctoral students have already published in one or two refereed journals by the time they produce their dissertation. For such individuals to be required to follow the dissertation format outlined by graduate schools, i.e., identifying and reporting every step of the scientific process of research, is not considered by all to be educational. Rather, there are those who consider the procedure archaic and ritualistic. Such individuals suggest a dissertation format which is appropriate to the style used for submitting to a journal for publication. According to Thomas and his colleagues, such a format "is the acceptable model for communicating results of research and scholarly works in the arts, sciences, and professions" (p. 117). The proposed alternative dissertation format would consist of (1) title page, acknowledgements, and abstract, (2) manuscript of the research prepared in journal form and, (3) the appendicies, which would include a more extensive review of the literature, procedures, and results. In this way, the dissertation is ready to be submitted immediately for publication.

Thomas et al make a critical suggestion with respect to where a scholar's so-called "training" has qualified him/her to seek to contribute to a field of study. The issue of the significance of the topic of inquiry and/or the degree of sophistication and validity of graduate student research is still another issue that warrants consideration.

Spriestersbach and Henry (1978) reflected similiar albeit more expressive thoughts about the dissertation format:

> Let us cultivate the virtue of mercy as well as rationality in our design of graduate programs . . . For example, if a Ph.D. candidate actually succeeds (as a surprising number do) in preparing and publishing one or more articles in a major publication in the field, do we have valid

> reasons why he must also be required to submit a book length dissertation to attest his capacity for scholarship or research? For that matter, why should not more dissertations be of article- length? If we really intend to prepare Ph.D. graduates for scholarly careers, and if most scholarly publication takes the form of articles, then it is important to ask ourselves why Ph.D. graduates should be required to start their careers by producing book length dissertations . . . . (p. 55)

In identifying the need for publication, the educational values of the dissertation process were not ignored. Spriestersbach and Henry (1978) acknowledged the usefulness of the dissertation research process. They wrote: "Let's view the experience as preparation of the student for a life of critical review and of intellectual regeneration, adaptation, and growth" (p. 54).

Berelson (1960) reflected a similiar view concerning the purpose of the dissertation process:

> [The issue] is that it should complete scholarly training or that it should initiate it . . . Which way is the tide running? The increase in the body of knowledge itself implies an answer: The more there is to master, the more the training period will become the start rather than the finish. (p. 174)

Kroll (1982) argued that the importance of new knowledge in a field of study was at the very root of its continued existence. He alleged that new knowledge improves the professional quality of a field of study. When the discipline has gone as far as it can on its available knowledge, new knowledge is necessary, and only through research does new information become available.

The merits of adding new information to the body of knowledge are apparent. However, producing new knowledge through original dissertation research is still in debate. As Berelson (1960) pointed out: "The demands of research and training for research, culminating in the doctoral dissertation, have been at the heart of controversies about graduate study from the start" (p. 12).

Summary

In reviewing books and articles for this chapter, three things were apparent. First, the literature about sport psychology varied greatly, ranging from personal opinion to systematic inquiry. Moreover, the wide range of terminology which frequently referred to a single concept confronts the beginning student of sport

psychology with a vague area of "specialization". Perhaps this is a reflection of the infancy of sport psychology as a subdiscipline of physical education.

Second, the literature on content analysis and dissertation research was limited considering the importance of these topics. Perhaps this is a situation worth investigating by the leaders in higher education.

Third, the precise usefulness of the doctoral dissertation as a part of higher education warrants reconsideration. If, in fact, a major goal of the experience is publication, then additional standards for format and the evaluation of substance should be considered.

CHAPTER III

PROCEDURES

The purpose of this study was to systematically examine dissertation research in sport psychology from 1966-1985. Selected characteristics of the dissertations were identified, unitized and reduced in accordance with content analysis methodology. The characteristics of each dissertation that were examined included (a) the psychological construct(s) addressed in the study, (b) the age, gender and group affiliation of the subjects utilized in the study, (c) the sport and/or physical activity and context associated with the study, (d) the research strategy reported, and (d) the type of instrumentation employed in the study. This chapter presents information concerning the methods used in carrying out the above research techniques.

Identifying the Population for Study

Gillis (1986) examined abstracts of 5,344 doctoral dissertations completed by students in departments of physical education in the United States from 1964 to 1983. The list of dissertations was established by Gillis after an exhaustive search of Dissertation Abstracts International, Completed Research in Health, Physical Education, and Recreation, and American Doctoral Dissertations. Content analysis made it possible for her to identify and classify her data, the dissertations, according to academic speciality and research strategy. See Appendix A for Gillis' procedures. The dissertation abstracts examined in the present study were those Gillis designated under the academic speciality of "Social-Psychological". In addition, dissertations for the years 1984 and 1985 that fit Gillis' "Social-Psychological" procedures were also included in the present study. Thus, the initial pool consisted of 701 dissertations classified according to Gillis' as "Social-Psychological" for the years 1964 to 1985. The decision to investigate dissertation research over the last twenty years only eliminated studies

dated 1964 and 1965. Therefore, 680 dissertations constituted the beginning data base for the present study.

Classification of Subjective Data

Because of the subjective nature of the data examined in the study, it was necessary to establish a coding system for generating correct and complete information for all of the characteristics under scrutiny. This procedure of the study was essential to establishing the reliability of the coding instrument and assuring the replicability of the study. A standard of .90 reliability was established by the principal investigator as an acceptable reliability quotient for the coding instrument.

Development of the Coding Schema

A classification system developed by Landers, Boutcher, and Wang (1986) to examine specific characteristics of articles in the Journal of Sport Psychology written from 1979 to 1985 was utilized for the first coding attempt. The characteristics from this included (a) research topics, (b) methodological setting, and (c) subject characteristics. An initial coding sheet developed by the principal investigator included (a) construct, (b) subject characteristics, (c) sport/physical activity context and, (d) instrumentation. See Appendix B.

Two coders, both with their doctorates in education, plus the principal investigator, served as the coders throughout the developmental stage of the coding sheet during which reliability coefficients were met, and again for reliability checks during the final coding of the dissertation abstracts by the principal investigator. The coders were chosen based on their familiarity with the methodology of content analysis. Preceding the initial coding the principal investigator met with the coders to discuss objectives of the investigation, the coders role in the investigation, and the information sought through the use of the coding sheet. The coders were instructed on how to make decisions concerning each of the characteristics to be coded, and told to follow as best they could the written instructions on coding previously developed by the principal investigator. The development of coding procedures then began with coders first working with 10 abstracts of masters theses selected from Research in Health, Physical

Education, and Recreation. Specific comments relative to the procedure were solicited directly on the coding sheet. See Appendix B.

After the abstracts had been coded, reliability coefficients were calculated for each characteristic coded following the guidelines established by Krippendorf (1980). See Appendix B for Krippendorff's formula. The reliability coefficients for each of the characteristics coded on the initial coding sheet were (a) construct, .54, (b) subject characteristics, .50, (c) sport/physical activity context, .45, and (d) instrumentation, .50. The coders and the investigator then met to discuss problems relative to use of the coding sheet. To help determine strategies for improving the guidelines for identification of the characteristics under study, each coder was asked to explain her decisions reported on the coding sheets. Two attempts at refining and rearranging the coding sheet (Appendixes D and E) followed utilizing selected master's theses. This effort resulted in no improvement in the reliability coefficients. The coders evaluated the revised coding sheets as awkward to use, vague in meaning, and confusing.

A fourth coding sheet involving a much more refined classification system was next developed. See Appendix F. The fourth plan identified the following characteristics: (a) social-psychological variable(s) addressed in the study, ASP, (b) age of the subjects used in the study, AGE, (c) gender of the subjects used in the study, GEN, (d) sport and/or physical activity involved, SPA, (e) the population from which the subjects were drawn, POP, and (f) the type of assessment tool used, AST.

Following a meeting between the coders and the investigator, during which revisions on the coding sheet were identified and clarified, ten additional master's thesis abstracts were coded by the two coders and investigator. Resulting reliability coefficients for this fourth phase of coding were .88 for ASP, .90 for AGE, .92 for SPA, .89 for POP, and .88 for AST, an acceptable improvement over the prior coding efforts.

Because the subject under investigation was doctoral dissertations, the investigator next selected ten doctoral dissertation abstracts from 1986 and 1987 Dissertation Abstracts International which she determined to represent the social-psychological academic speciality. The coders and investigator met again, during which

time the investigator identified and explained any new revisions of the coding sheet. See Appendix G. Following completion of coding on the dissertation abstracts, the coding sheets were once more compared for reliability, resulting in coefficients of .90 for ASP, .90 for AGE, .95 for SPA, .90 for POP, and .95 for AST.

With the intent of increasing the probability that the above reliability coefficients were not due to chance, the above process was repeated using ten more doctoral dissertation abstracts not used in the present study. Resulting reliability coefficients from this coding phase were ASP: .92, AGE: .90, SPA: .98, POP: .91, and AST: .96. The pre-established reliability quotient of .90 was thus met. Total abstracts coded in the pilot was 60.

The principal investigator proceeded to code each of the 680 social-psychological dissertation abstracts, 1966-1985, included in the study. "Spot checks" for reliability were made throughout the coding process. This was accomplished by the investigator randomly selecting two dissertation abstracts from each year (N=40), 5% of the total set of dissertation abstracts, for testing for reliability when coded by the same three individuals previously involved.

During the coding process, it was determined that 29 dissertation abstracts did not include all the information necessary for unitizing. In such cases, the complete dissertations were obtained through the Jackson Library at The University of North Carolina, Greensboro, for use in the study. Only two dissertations were unavailable through interlibrary loan; they were eliminated from the study, lowering the number of dissertations reviewed to 678.

Elimination of Sport Sociology Studies

Following the coding of all the dissertation abstracts classified as social-psychological specialties, it was necessary to establish guidelines by which the studies that were primarily sociological in nature would be deleted from future analysis. To accomplish this, a list was compiled of all the social and psychological constructs coded from the dissertation abstracts. This list was compared to the psychological constructs/topics addressed in Silva and Weinbergs' Psychological Foundations of Sport

(1985), Gill's Psychological Dynamics of Sport (1986), Loy, Kenyon, and McPherson's Sport, Culture and Society (1981), and Leonard's A Sociological Perspective of Sport (1980). The comparison revealed the constructs/topics most relevant to psychology, sociology, and both. Elimination of sociology topics not addresed in the psychological literature was next accomplished. See Appendix H. Finally, a final list of psychological and psychological-sociological topics/constructs was formulated. Decisions about the inclusion or exclusion of questionable reports were made at the descretion of the principal investigator following further review of the literature. The final population of sport psychology dissertations analyzed in the present research project following the construct categorization process was 459.

Classification of Psychological Constructs

Because of the large number of psychological constructs addressed in the sport psychology dissertation research (Appendix I), it was necessary to group the constructs into a more managable form for the purposes of analysis and discussion. The categories established by Landers, Boutcher and Wang (1986) were the first used. They included (a) personality, (b) anxiety, arousal & performance, (c) modeling, behavior modification, (d) motivation, (e) aggression, (f) group dynamics, (g) exercise and well-being, (h) methodology, (i) intervention and mental practice, (j) youth sports, (k) professional issues, and (l) sport socialization. Further considerations led to the deletion of (a) exercise and well-being, (b) methodology, (c) youth sports, (d) professional issues, and (e) sport socialization as constructs studied.

Reclassification reduced to nine the final groupings of sport psychology constructs that fit the scope and nature of the present study: (a) group dynamics, (b) motivation, (c) behavior modification, (d) intervention, (e) aggression, (f) personality, (g) anxiety, (h) attitudes, and (i) attention. Appendix I reveals the complete list of constructs.

Classification of Subject Age

Because of the diversity of age groups referred to in the sport psychology dissertation research, it was necessary to group the ages for purposes of analysis. To

accomplish this, a list of every type of reference to subject age was compiled. For example, elementary, 4th graders, and nine year olds could all be considered as representing the same age. See Appendix J. The classification of ages was accomplished using categories on the list which made the data more managable but did not reduce the meaning of the data. "Multiple-labeling" also allowed for a clearer understanding of the data and facilitated discussion of the results in light of the questions asked.

The classification of subject age used in the characterization of sport psychology dissertations was as follows: (a) preschool, ages 0-5, (b) elementary, ages 6-12, (c) junior high school, ages 13-15, (d) senior high school, ages 16-18, (e) college, ages 19-23, (f) young adult, ages 24-40, (g) middle aged, ages 40-60, and (h) older adult, ages 60 and up. When an overlap occurred by more than one year, all age groups involved were coded. For example, if the subject age referred to in the abstract included ages 11 through 17, elementary, junior high school, and senior high school were all coded. If the subject age referred to in the abstract included ages 12 through 16, only junior high school was coded. This explains the high N obtained in the coding of age.

Classification of Physical Activity

Classification of the physical activity associated with the subject in the study was designated on the coding sheet as (a) sport, (b) physical activity (general), and/or (c) motor task. The activity engaged in during the study or associated with the subject in the study was tallied. For example, basketball could have been the sport engaged in by the subject during the study or the subject may have simply been identified as a member of a basketball team who was asked to complete a psychological inventory for the purposes of the dissertation research. In order to determine categories for purposes of analysis and discussion, all sports, physical activities, and/or motor tasks identified on the coding sheets of the sport psychology dissertation abstracts were first listed together. Specific sports, e.g. basketball or track and field, were identified and placed on an individual list. These in turn were further classified as either a team sport or an individual sport. A number of the studies referred to the activity only as "team and

individual sports". Therefore, a third sport category, titled "team and individual sports", was added to the coding plan.

A category called "exercise/dance" was established to accommidate all activities referred generally as exercise or dance. For example, aerobics and run/walk were included in this category. Activities referred to in such general terms as performance task, spontaneous play, and goal setting training were classified as general physical activities. Motor tasks were acknowledged in a separate classification. The exact motor task studied was referred to subsequently on the coding sheet designed to indicate "Assessment Tools".

The final category designated for classifying physical activity was "class/program". The category was also established to help in determining the physical context (environment) of the study. Appendix K presents a listing of the sport/physical activity categories.

Classification of Physical Activity Context

When the present investigation was conceptualized, the investigator was interested in identifying what proportion of the studies were conducted in a laboratory setting as compared to a physical education class or an athletic setting. However, reanalysis of the abstracts revealed only twenty-eight percent (N=128) of the total abstracts contained information as to the exact place where the data were collected. Therefore, the initial intent of determining the context could only be determined by inference when "group affiliation", "sport/physical activity", and "performance measure" were considered. Preliminary crosstabulations of these three characteristics revealed no clearly interpretable patterns. The crosstabulations are appended (Appendix L) for the reader to make his/her own interpretation.

Classification of Group Affiliation

In order to identify and analyze the variety of subject populations used in the dissertation research, categories were established to reflect the population from which the subjects were drawn. To accomplish this, all the subject populations identified on the coding sheet were first identified on one list. The list led to the establishment of

the first category, "athletes", which included any subjects referred to in the study as a member of sports team, an athlete, or a competitor in some sport activity. See Appendix M for a complete listing of all the categories included under group affiliation. The category was further refined to indicate "amateur athlete" and "professional athlete".

The next category established was "community". It included such populations as "public", "city field hockey program", and "YMCA fitness program". Although some of the categories inferred the subjects were involved in a competitive situation, the investigator did not feel this warrented coding them as athletes.

The student category was used to identify students in general, students in general physical education classes, dance majors, and other classifications as well. The "school related" label was established to account for individuals associated in some way with the school environment, but not students or coaches. Included were physical education department chairs, physical education teachers, and athletic trainers. The "coaches" category included coaches at the junior high school, senior high school, and college level.

The physically handicapped, mentally handicapped, and socially atypical subjects were tallied as "handicapped". Such populations encompassed ambulatory students, emotionally disturbed, and prison inmates, respectively.

A final population category was established called "others". All subjects studied in sport psychology dissertations which did not fit one of the other established categories were considered in this "umbrella" category. Examples of those included in such populations were highway patrol officers, hockey fans, and soccer camp participants.

Classification of Assessment Tools

All reports of the assessment of subjects were tabulated. Standardized paper and pencil tests, sport performance measures, general measures, author's measurements, and motor tasks were carefully tallied. Upon completion of coding, a list was established of "standardized instruments" and "performance measures". For the

purposes of analyses and discussion, the following procedures were followed to establish categories reflecting these two types of assessment.

First, all the psychological instruments referred to in the abstracts were listed from the "standardized instruments" list. This new list was then compared to the instruments listed in the Mental Measurements Yearbook. The Mental Measurements Yearbook was selected as a classification category because it is both comprehensive and well-known. This led to the establishment of two categories of instruments: (a) instrument was an unpublished psychological instrument, NON, and (b) instrument was listed in Mental Measurements Yearbook, MMY. The remaining instruments on the "standardized instruments" list were categorized as (a) instrument was developed by the dissertation authors (investigator) for the purpose of their own studies, INV, and (b) instrument was an unpublished sport psychology instrument, SPT. Thus, the final four categories used in the analysis of the dissertations with respect to instrumentation were (a) Mental Measurements Yearbook psychological instruments, MMY, (b) unpublished psychological instruments, NON, (c) investigator-developed instrument, INV, and (d) sport psychology instrument SPT. See Appendix N for the complete list of assessment tools identified in the present study.

Following a similiar process, categories were established from the list of "performance measures". The "sport specific" category included any assessment of the subject on a test or measurement which made reference to a specific sport-related task, e.g., the French short serve test, the basketball timed shoot, and the AAHPER tennis test. Next, there were "fitness performance measures" including any assessment by the subject on some test or measurement which referred to fitness, strength, physical efficiency, or pain, e.g., Balke treadmill test, strength index, and Fleishman's fitness test.

A category called "motor task-battery" was also utilized. Any assessment by the subject on some battery of tests measuring motor ability or motor performance, e.g., Barrow's motor ability test and McCloy's general motor performance test, was included

in this category. Some of these tests involved sport-specific tasks, but the majority of the performance measures were some type of motor tasks and ability tests.

Motor tasks were designated as (a) cognitive, (b) fine motor, (c) general motor, and (d) gross motor. "Physiological measures" was the designation used for physiological measurements, e.g., muscle tension, skinfold measurement, and vital capacity.

The final instrumentation category, "general performance", included those measurements which did not cleanly fall under any one of the other established categories described above. This category included IQ scores, judge's observations, length of stay in the hospital, and observation.

The resulting classification system for performance measures was as follows: (a) cognitive, (b) fitness, (c) fine motor, (d) general motor, (e) gross motor, (f) motor task battery, (g) physiological, and (h) sport specific. Appendix O presents complete list of the classification system of performance measures.

Classification of Non-Arbitrary Characteristics

Two non-arbitraty characteristics, gender of the subjects and research strategy, were analyzed. The gender of the subjects identified in each study was recorded as either male, female, or both. The research strategy was identified from the list produced by Gillis (1986). Chapter 1 provides an expanded description of the research strategies.

Analysis of the Data

One-way frequency distributions and crosstabulations were applied to the data for descriptive analysis. An inferential statistical analysis was considered inappropriate for these data because of multiple coding. Multiple coding occurred when a characteristic was tallied more than once in a dissertations, e.g., age denoted more than one designated age group in a single dissertation. Thus the coding yielded different totals for each characteristic addressed in the present investigation.

The computer program used in this investigation was produced by a colleague at The University of North Carolina, Greensboro. Data analysis took place on the VAX

System in the Academic Computer Center at The University of North Carolina, Greensboro.

Summary

A list of 701 dissertations cited in Gillis (1986) as representing the academic speciality entitled "Social-Psychological" served as the beginning data base for the research presented in this study. In addition, dissertations for the years 1984 and 1985 identified as "Social-Psychological" by Gillis' procedures were also included in the present study. In as much as sport psychology dissertation research over the last twenty years served as a boundary for the study, 1964 and 1965, a total of 21 dissertations, were deleted from the data base. Dissertations focusing on sociological phenomena were eliminated from the study.

Through systematic coding of the abstracts, the following characteristics were identified for each dissertation: (a) social-psychological construct, (b) subject age, (c) subject gender, (d) sport/physical activity associated with the subject in the study, (e) population from which subjects were drawn, (f) assessment tools used, and (g) research strategy of the study. All of the data obtained from sport psychology dissertations (N=459) constituting the sample for the present inquiry were entered into a VAX computer. One-way frequency distributions and cross tabulations were calculated in order to determine the responses to research questions delineated in chapter one.

CHAPTER IV

FINDINGS

An analysis of specific characteristics of 459 doctoral dissertations in sport psychology was undertaken in order to characterize the studies, discover trends in research from 1966 to 1985, and extract useful methodological and substantive information about the field of study. The characteristics which were recorded and classified for the purpose of descriptive analysis and discussion were: (a) psychological construct, (b) age, gender, and group affiliation of the subject population, (c) sport and/or physical activity and context, (d) research methodology, and (e) nature of the instrumentation. The following text presents the findings as revealed by the analysis of the data.

First, an overview of the initial frequency and crosstabulation summaries are reported. Also presented in this part of the text are each major characteristic studied with respect to frequency and distribution across the twenty-year period investigated, 1966 through 1985. In order to more easily recognize possible trends in the distribution, the years were blocked into five four-year periods: 1966-1969, 1970-1973, 1974-1977, 1978-1981, and 1982-1985. Information that was not called for in the questions that framed the study but was revealed by the analysis as contributing to the overall picture of dissertation research in sport psychology is included.

The second part of the chapter reports each psychological construct studied in relationship to (a) the other psychological constructs, and (b) the other dissertation characteristics studied. The chapter concludes with a brief summary.

Frequencies, Crosstabulations and Percentages

In order to accurately report the characteristics of sport psychology dissertations, the tables presented in this chapter indicate the summaries of coding frequencies and percentages of each item tabulated. None of the totals are the same. For example, the

characteristic, "psychological construct", has a summary total of 559 whereas "age" has a summary total of 724. Had each dissertation addressed only one dimension of the characteristic under investigation, the totals obtained by the coding would have equaled the total number of dissertations in the study (N=459). But this was not so. Therefore, when one characteristic was studied "with one other" characteristic, the number indicated is based on the "summary total" for that characteristic; not the total number of dissertations studies (N=459). To accurately interpret percentages that are reported in the following text, the reader is urged to review the appropriate table and be aware of the number of studies involved.

Psychological Constructs

What were the substantive topics of psychology studied in the sport psychology dissertation research? How were the topics of psychology distributed across the twenty-year period of sport psychology dissertations studied?

For the purpose of analysis, each psychological construct derived from the coding process (N=157) was placed in one of the following categories: (a) aggression, (b) anxiety, (c) attention, (d) attitude, (e) behavior modification, (f) group dynamics, (g) intervention, (h) motivation, and (i) personality. The initial list of 157 constructs is presented in Appendix I.

A one-way frequency distribution of the psychological constructs is presented in Table 1. Of the 459 dissertations studied, 366 (80%) addressed a single psychological construct, 86 (19%) addressed two psychological constructs, and 7 (1%) addressed three psychological constructs. Multiple coding, as described in Chapter 3, yielded a total of 559 psychological constructs. Results revealed that the psychological constructs most frequently recorded within the sport psychology dissertations research were personality and motivation, and the least studied construct was attention. More specifically, personality was addressed in 203 of the dissertations studied (36% of the 559 coded psychological constructs), and motivation was a part of 129 of the dissertations (23%) investigated as a part of the present study. Anxiety constituted 14%, or 77 of the total sport psychology dissertations reviewed. Forty-eight studies (9%) were concerned with

Table 1

Psychological Constructs Reflected in Sport Psychology Dissertations, 1966-1985

			Frequency of Construct Studied		
CONSTRUCT	N	PCT	Alone	With one other construct	With two other constructs
Aggression	22	4	19	2	1
Anxiety	77	14	36	37	4
Attention	8	1	2	4	2
Attitude	19	3	9	9	1
Behavior Modif	15	3	11	3	1
Group Dynamics	48	9	34	13	1
Intervention	38	7	18	18	2
Motivation	129	23	84	41	4
Personality	203	36	153	45	5
TOTAL	559	100	366	172	21

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

group dynamics. Intervention, was addressed in 38(7%) of the dissertations identified as psychological in nature. Twenty-two (4%) of the sport psychology dissertations were concerned with the psychological construct of aggression. Attitudes were identified in 19 (3%) of the sport psychology dissertations as were studies on behavior modification (N=15, 3%). Only 1% (N=8) of the sport psychology dissertations in the 20-year period focused on the psychological construct labeled attention.

Table 2 presents the psychological constructs as they are represented across the twenty-year period studied. Worth noting was the consistent increase in research addressing group dynamics, from 2 studies (3%) in 1966-1969 to 18 studies (14%) in the 1982-1985 period. Dissertations addressing anxiety and intervention also increased over the 20 years studied. Anxiety increased from 6 studies (10%) in the 1966-1969 period to 18 studies (14%) in the 1982-1985 period. Likewise, intervention, which was not studied at all during the 1966-1969 time span, increased to 13 studies (10%) during the 1982-1985 period. No trend was evident with respect to the other constructs.

Attitudes and personality both decreased in frequency as constructs studied in dissertations following the 1970-1973 time period through the 1982-1985 period. Attitudes decreased from 8 studies (6%) to 3 studies (2%); personality decreased from 54 studies (42%) to 34 studies (27%). Neither attention nor behavior modification were studied during the 1966-1969 period; yet these constructs showed somewhat consistent increases over the remaining time studied. Attention increased from 1 study (1%) during the 1970-1973 period, and zero studies during the 1974-1977 period, to 6 studies (5%) during the 1982-1985 period. Behavior modification was reported in 4 studies (3%) during the 1970-1973 period, decreased to 2 studies (2%) during the 1974-1977 period, and increased to 3 studies (3%) during the 1978-1981 period and, then, 6 studies (5%) during the 1982-1985 time period. Motivation and aggression appeared to fluctuate across the years. Motivation decreased from 33 studies (28%) during the 1978-1981 period to 26 studies (20%) in the last period of time studied, 1982-1985. Aggression was evident in 7 studies (6%) during the 1978-1981 period and decreased to 3 studies (2%) during 1982-1985.

Table 2

Psychological Constructs Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

	1966-1969		1970-1973		1974-1977		1978-1981		1982-1985	
CONSTRUCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Aggression	1	2	5	4	6	5	7	6	3	2
Anxiety	6	10	17	13	17	14	19	16	18	14
Attention	0	0	1	1	0	0	1	1	6	5
Attitude	0	0	8	6	4	3	4	3	3	2
Behavior Modif	0	0	4	3	2	2	3	3	6	5
Group Dynamics	2	3	6	5	10	8	12	10	18	14
Intervention	0	0	4	3	11	9	10	8	13	10
Motivation	12	21	31	24	27	22	33	28	26	20
Personality	37	64	54	42	48	38	30	25	34	27
TOTAL	58	100	130	100	125	100	119	100	127	100

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

Subject Age

What were the characteristics of the subject populations studied with respect to age? How were these ages distributed across the twenty-year period of sport psychology dissertations being studied?

Upon completion of initial unitizing by coders in the present investigation, ages were grouped as follows for the purpose of analysis: (a) preschool, ages 0-5, (b) elementary, ages 6-12, (c) junior high school, ages 13-15, (d) senior high school, ages 16-18, (e) college, ages 19-23, (f) young adult, ages 24-40, (g) middle aged, ages 40-60, and (h) older adult, ages 60 and up. Appendix J reports all the original instances in which the ages were found.

A one-way frequency distribution of the age categories is presented in Table 3. Of the 459 dissertations examined as a part of the present investigation, 314 (68%) of these dissertations addressed one age category, 46 (10%) were concerned with two age categories, 69 (15%) focused on three age categories, 24 (5%) involved four age categories, and 3 (.6%) addressed five age categories. The theoretical nature of three of the dissertations reviewed omitted any reference to subject age.

Multiple coding, as described in chapter 3, yielded 727 as the total number of times an age category was coded. The most frequently studied age categories were 19-23 year olds and 24-40 year olds. More specifically, the largest number of age categories was represented by the college age classification which was coded 276 times, or 38% of the dissertations included in this research. Young adults were studied in 119 of the sport psychology dissertations studies (16%); middle adults were used as subjects in 95 of the studies (13%). Various other student populations, presented in decending order of frequency, were senior high school students (N=76, 10%), elementary (N=57, 8%), junior high school (N=45, 6%), and preschool (N=2,.3%). Finally, the category designated as older adults was coded in 54 (7%) of the sport psychology dissertations studied.

Table 4 presents the age categories as they are represented across the twenty-year period studied. Of interest was the large increase found in the use of middle

Table 3

Subject Age Reflected in Sport Psychology Dissertations, 1966-1985

			Frequency of Subject Age Studied				
SUBJECT AGE	N	PCT	Alone	With one other age group	With two other age groups	With three other age groups	With four other age groups
Preschool (0-5 years)	2	<1	0	2	0	0	0
Elementary (6-12 years)	57	8	36	5	11	3	2
Junior H.S. (13-15 years)	45	6	12	11	14	5	3
Senior H.S. (16-18 years)	76	10	31	13	21	8	3
College (19-23 years)	276	38	223	15	18	17	3
Young Adults (24-40 years)	119	16	9	27	56	24	3
Middle Adults (40-60 years)	95	13	2	18	53	21	1
Older Adults (60+ years)	54	7	1	1	34	18	0
Uncodable	3	<1					
TOTAL	727	100	314	92	207	96	15

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100.

Total number of dissertations studied, which generated this data, was 459.

Table 4

Subject Age Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

	1966-1969		1970-1973		1974-1977		1978-1981		1982-1985		
SUBJECT AGE	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	TOTAL
Preschool (0-5 years)	0	0	0	0	0	0	2	1	0	0	2
Elementary (6-12 years)	5	7	16	9	12	8	12	8	12	7	57
Junior H.S. (13-15 years)	7	10	15	9	11	7	4	3	8	5	45
Senior H.S. (16-18 years)	11	16	25	15	18	12	13	8	9	5	76
College (19-23 years)	31	45	71	42	60	39	67	42	47	27	276
Young Adults (24-40 years)	8	12	23	13	26	17	24	15	38	22	119
Middle Adults (40-60 years)	5	7	16	9	18	12	21	13	35	20	95
Older Adults (60+ years)	2	3	5	3	7	5	15	9	25	14	54
Uncodable	0	0	2	1	0	0	0	0	1	1	3
TOTAL	69	100	173	100	152	100	158	100	175	100	727

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

adults and older adults as subjects in doctoral dissertations while use of junior high school and preschool subjects decreased over the time span studied. Use of middle adults increased in frequency from 5 studies (7%) during the 1966-1969 period to 35 studies (20%) for the most recent span of years studied, 1982-1985. Frequency in the use of older adults increased from 2 studies (3%) during the 1966-1969 period to 25 studies (14%) for the 1982-1985 period. An increase was also noted in the use of young adults, from 8 studies (12%) during the 1966-1969 period to 38 studies (22%) during the 1982-1985 period, with only a slight decrease of 2 studies from the 1974-1977 period to the 1978-1981 period (from 26, or 17%, to 24, or 15% of the studies). Following an initial increase in use of senior high school subjects, from 11 studies (16%) during the 1966-1969 period to 25 studies (15%) for the 1970-1973 period, a consistent decrease in studies using this age category was noted. Only 9 studies (5%) were found for the final period 1982-1985.

Junior high school subjects increased as subjects in doctoral dissertations in sport psychology from 7 studies (10%) during the 1966-1969 period to 15 studies (9%) for the 1970-1973 period. However, this was followed by a decrease over the next eight years, 1974-1981; only 8 studies (5%) were found during the final time period, 1982-1985. The most frequently used age group, college, increased from 31 studies (45%) during the 1966-1969 period to 71 studies (42%) for the 1970-1973 period. This was followed by up and down fluctuations over the remaining time investigated. Forty-seven studies (27%) using college subjects were found during the final period, 1982-1985. Also, after an initial increase from 5 studies (7%) during the 1966-1969 period to 16 studies (9%) for the 1970-1973 period, use of elementary age subjects decreased to 12 studies (8%) for each of the remaining time periods, 1974-1977, 1978-1981, and 1982-1985.

Subject Gender

What were the characteristics of the subject population studied with respect to gender? How was gender distributed across the twenty-year period of sport psychology dissertations being studied?

A one-way frequency of the genders studied is presented in Table 5. Of the 459 dissertations coded, the largest number of dissertations used male subjects (N=191, 42%). One hundred and fifty-two studies (33%) used both male and female subjects. Finally, there were 112 dissertations that used only female subjects (24%). Gender was not interpretable in four of the dissertations which were theoretical in nature and did not consider gender.

Table 5 also presents the gender categories as they were focused across the twenty-year period studied. In looking at percentages, the pattern clearly shows a decrease in the use of male subjects and an increase in the category referring to both females and males. Specifically, use of both male and female subjects increased, from 8 studies (15%) in the 1966-1969 time period to 52 studies (54%) in the 1982-1985 time period. Although there was some initial increase in the use of male subjects, from 34 studies (64%) during the 1966-1969 period to 65 studies (57%) for the 1970-1973 period, what followed was a steady decrease over the next twelve years; only 25 studies (25%) for both the 1978-1981 and 1982-1985 time periods were found. Use of female subjects increased over the time period investigated, from 11 studies (21%) in the 1966-1969 period to 31 studies (27%) in the 1970-1973 period. This was followed by considerable fluctuation; female subjects were involved in 18 studies (19%) in the 1982-1985 period.

Group Affiliation

What were the characteristics of the subject population studied with respect to their group affiliation? How were the group affiliations distributed across the twenty-year period of sport psychology dissertations being studied?

To facilitate analysis, the group affiliations were classified according to where the subjects were drawn, e.g., athlete, student, coach. Coding and classification of the different populations resulted in the following categories: (a) athletes, (b) coaches, (c) community, (d) handicapped, (e) professional athletes, (f) school- related population, (g) students, and (h) other. Appendix M presents all units of each group affiliation category coded in the present study.

Table 5

Subject Gender Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

			1966-1969		1970-1973		1974-1977		1978-1981		1982-1985	
GENDER	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT	N	PCT
Male	191	42	34	64	65	57	42	44	25	25	25	26
Female	112	24	11	21	31	27	24	25	28	28	18	19
Both	152	33	8	15	16	14	29	30	47	47	52	54
Uncodable	4	<1	0	0	2	2	0	0	0	0	2	50
TOTAL	459	100	53	100	114	100	95	100	100	100	97	100

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100.

A one-way frequency distribution of the level of skill categories is presented in Table 6. Of the 459 sport psychology dissertations studied, 376 (82%) addressed only one group affiliation category, 76 (17%) addressed two categories of group affiliation, and 4 (1%) were concerned with three group affiliation categories. Three dissertations coded made no reference to subjects' group affiliation due to the theoretical nature of the study. Multiple coding, as described in the previous chapter, yielded 540 as the total number of times a "group affiliation" category was coded.

Most revealing was the finding that 68% of the total group affiliations was accounted for by "students" and "athletes". Subjects categorized as students in the sport psychology dissertations investigated were coded 193 times (36%). Athletes were coded 175 times or in 32% of the units representing group affiliation. Also studied, presented here in decending order, were "other" (N=50, 9%), coaches (N=48, 9%), community members (N=27, 5%), handicapped (N=22, 4%), school related subjects (N=18, 3%), and professional athletes (N=7, 1%).

Table 7 presents the subject affiliations as they are represented across the twenty-year period studied. No consistent trends were revealed. Sport psychology dissertations using athletes increased consistently from the 1966-1969 period (13 studies, 21%) to the 1974-1977 period (44 studies, 38%). No other increase in the use of athletes as subjects was observed after 1977. In fact, there was a decrease to 33 studies (31%) for the final period studied, 1982-1985. Use of coaches as subjects increased from 2 studies (3%) during the 1966-1969 period to 12 studies (9%) for the 1970-1973 period. This was followed by a drop to only 6 studies (5%) involving coaches for the 1974-1977 period. But, the review of sport psychology dissertations revealed an increase, again, over the final two 4-year periods. Coaches were part of dissertation research in 17 studies (16%) for the 1982-1985 period.

After an initial decrease from 2 studies (3%) during the 1966-1969 period to 1 study (<1%) for the 1970-1973 period, studies concerned with school related populations increased steadily from 3 (3%), during the 1974-1977 period, to 7 studies (7%) for the 1982-1985 time period. Subjects coded as "other" and "students" both increased from

Table 6

Group affiliation Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

GROUP AFFILIATION	N	PCT	Frequency of level of skill studied		
			Alone	With one other group	With two other groups
Athlete	175	32	105	66	4
Coach	48	9	22	26	0
Community	27	5	20	7	0
Handicapped	22	4	20	2	0
Profess. Athlete	7	1	4	3	0
School Related	18	3	13	2	3
Students	193	36	182	9	2
Other	50	9	10	37	3
Uncodable	3				
TOTAL	543	100	376	152	12

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

Table 7

Group Affiliation Reflected in Sport Psychology Dissertations, 1966-1985

GROUP AFFILIATION	1966-1969 N	1966-1969 PCT	1970-1973 N	1970-1973 PCT	1974-1977 N	1974-1977 PCT	1978-1981 N	1978-1981 PCT	1982-1985 N	1982-1985 PCT
Athlete	13	21	41	30	44	38	44	36	33	31
Coach	2	3	12	9	6	5	11	9	17	16
Community	2	3	8	6	7	6	4	3	6	6
Handicapped	3	5	4	3	5	4	2	2	8	8
Professional Athlete	2	3	1	<1	1	<1	1	<1	2	2
School Related	2	3	1	<1	3	3	5	4	7	7
Student	32	52	54	40	37	32	42	34	28	27
Other	5	8	15	11	12	10	14	11	4	4
Uncodable	0	0	2	<1	0	0	0	0	1	1
TOTAL	61	100	138	100	115	100	123	100	106	100

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

the first four-year time span of 1966-1969 (5 studies, 8%, and 32 studies, 52%, respectively), to the next time span of 1970-1973 (15 studies, 11%, and 54 studies, 40%, respectively). Then, there was down and up fluctuation. Both groups involved ended on a decline for the 1982-1985 time period (4 studies, 4%, and 28 studies, 27%, respectively).

Research involving handicapped subjects showed a steady increase from 3 studies (5%) during the 1966-1969 period to 5 studies (4%) for the 1974-1977 period, followed by a decrease to 2 studies (2%) for the 1978-1981 period. There was, then, an increase to 8 studies (8%) for the 1982-1985 time span. Subjects coded as community group members, after an initial increase from 2 studies (3%) during the 1966-1969 period to 8 studies (6%) during the 1970-1973 period, registered a steady increase in involvement in sport psychology dissertations from 4 studies (3%) during the 1978-1981 period to 6 studies (6%) for the final time span, 1982-1985. The small number of dissertations using professional athletes (N=7) remained relatively constant over the twenty-year period. Two studies (3%) were noted for the 1966-1969 period, 1 study (<1%) for each of the next three time spans of 1970-1973, 1974-1977, and 1978-1981, and 2 studies (2%) in the final time period, 1982-1985, were concerned with professional athletes.

Sport/Physical Activity

What were the specific sports and/or physical activities represented in the sport psychology dissertation research? How were the sport/physical activities distributed across the 20 year period of the sport psychology dissertations being studied?

For analysis, each sport and physical activity was coded according to one of the following categories: (a) class, (b) exercise/dance, (c) general activity, (d) individual sport, (e) motor task, (f) team and individual sport, (g) team sport, and (h) not applicable. The frequency of each specific sport and physical activity is presented in Appendix K.

A one-way frequency distribution of the sport/physical activity categories found in the research studied is presented in Table 8. Of the 459 dissertations reviewed, 394 (86%) were concerned with only one sport/physical activity, 122 (13%) addressed two

Table 8

Sport/Physical Activity Reflected in Sport Psychology Dissertations, 1966-1985

SPORT/PHYSICAL ACTIVITY	N	PCT	Frequency of sport/physical activity studied		
			Alone	With one other sport/phy. act.	With two other sport/phy. act.
Class Activity	35	7	28	6	1
Exercise/Dance	49	9	38	8	3
General Activity	45	8	34	9	2
Individual Sport	120	23	80	39	1
Motor Task	91	17	66	21	4
Team & Individual Sport	30	6	28	2	0
Team Sports	138	26	100	37	1
Not Applicable	20	4			
TOTAL	528	100	394	122	12

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

sports/physical activities, and 12 (.8%) accounted for 3 sports/physical activities. Multiple coding, as described in chapter 3, yielded 528 as the total number of times a sport or physical activity category was reported.

Team sports were identified in 138 studies; this constituted 26% of the total number of dissertations studied. In descending order of frequency were (a) individual sports (N=120, 23%), (b) motor tasks (N=91, 17%), (c) general activity (N=45, 8%), (d) exercise/dance (N=49, 9%), (e) class (N=35, 7%), and (f) team and individual sports (N=30, 6%). Twenty of the dissertations made no reference to a sport or physical activity, and were coded "Not Applicable".

Table 9 indicated the sport/physical activity categories as they are represented across the twenty-year period studied. Over the 20-year period studied, no specific sport or physical activity revealed any particular trends. Dissertations that involved both team and individual sports combined in one coding category increased consistently, from 2 studies (3%) in the 1966-1969 time period to 10 studies (9%) for the 1978-1981 period. There was only a slight decrease during the 1982-1985 period (N=9, 8%). The general activities category increased 14 studies (from 3% to 12%) from the 1966-1969 period to the 1970-1973 period; this was followed by a decrease in frequency to 9 studies (8%) for the 1974-1977 period and 8 studies (7%) during the 1978-1981 period. In the final period, 1982-1985, general activities were identified in 10 studies (9%). Doctoral dissertation research revealed an increased involvement with team sports from 1966-1969 (N=11, 18%) to the 1970-1973 time span (N=38, 28%). Then, eight years of fluctuation followed. In the 1982-1985 period, 27 studies (25%) were concerned with team sports.

Sport psychology dissertations involving motor tasks increased the first two four-year periods, 1966-1969 and 1970-1973, from 9 studies (15%) to 27 studies (20%). Over the remaining twelve years there was a steady decrease to 13 studies (12%) during the 1982-1985. Individual sports as a concern of sport psychology dissertations increased the first three four-year periods, 1966-1969, 1970-1973, and 1974-1977, from 17 studies (27%) to 29 studies (26%). Thereafter, individual sports declined in frequency in the

Table 9

Sport/Physical Activity Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

SPORT/PHYSICAL ACT.	1966-1969 N	1966-1969 PCT	1970-1973 N	1970-1973 PCT	1974-1977 N	1974-1977 PCT	1978-1981 N	1978-1981 PCT	1982-1985 N	1982-1985 PCT
Class Activity	6	10	6	4	6	5	10	9	7	6
Exercise/Dance	12	19	12	9	9	8	6	5	10	9
General Activity	2	3	16	12	9	8	8	7	10	9
Individual Sport	17	27	27	20	29	26	23	21	24	22
Motor Task	9	15	27	20	23	21	19	17	13	12
Team & Indiv. Sport	2	3	3	2	6	5	10	9	9	8
Team Sport	11	18	38	28	28	25	34	30	27	25
Not Applicable	3	5	5	4	2	2	2	2	8	7
TOTAL	62	100	134	100	112	100	112	100	108	100

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

reports reviewed to 23 studies (21%) for the 1978-1981 period. There were 24 studies (22%) identified in the final period reviewed. Subjects engaged in exercise/dance decreased slightly from 12 studies during both the 1966-1969 period (19%) and the 1970-1973 period (9%) to 6 studies (5%) during 1978-1981. For the 1982-1985 period, there was an increase from 6 (5%) studies to 10 (9%). The dissertations utilizing "class" in its research remained constant each four year period from 1966 to 1977 (N=6 each time span). An increase to 10 studies (9%) using class members occurred for the 1978-1981 period. Seven studies (6%) were reported during the final time period analyzed, 1982-1985.

Research Strategies

What were the predominant research strategies utilized in the sport psychology dissertation research? How were the research strategies distributed across the 20 year period of sport psychology dissertations being studied?

The research strategies that were coded in the analysis were: (a) historical research, (b) descriptive research, (c) case and field study research, (d) causal-comparative research, (e) true experimental research, (f) quasi-experimental research, (g) action research, (h) philosophical research, and (i) product development. A one-way frequency distribution of the research strategies is presented in Table 10. The most frequently used research strategy in sport psychology dissertations was descriptive research, identified in 177 (38%) of the dissertations coded. Another consistent observation was the use of the quasi-experimental strategy, second in popularity across the 20-year time period investigated. Quasi-experimental strategies were identified in 151 studies, constituting 33% of the dissertations investigated. Causal-comparative research accounted for 10% (N=47) of the population of dissertations reviewed in the present study. "True experimental" research design was utilized in 68 (15%) of the dissertation research investigated. The remaining research strategies identified among sport psychology dissertations were product development (N=9, 2%), case and field study (N=3, 1%), philosophical (N=2, .4%), and action research (N=1, .2%). Historical research was not utilized in any of the sport psychology dissertations researched.

Table 10

Research Strategies Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

RESEARCH STRATEGY	1966-1969 N	1966-1969 PCT	1970-1973 N	1970-1973 PCT	1974-1977 N	1974-1977 PCT	1978-1981 N	1978-1981 PCT	1982-1985 N	1982-1985 PCT	TOTAL	PCT
Descriptive	21	40	48	42	33	35	45	45	30	31	177	38
Case/Field Study	0	0	1	<1	1	1	1	1	0	0	3	<1
Causal Comparative	2	4	11	10	9	9	12	12	13	13	47	10
True Experimental	8	15	19	17	13	14	18	18	10	10	68	15
Quasi Experimental	21	40	32	28	39	41	24	24	35	36	151	33
Action	0	0	0	0	0	0	0	0	1	1	1	<1
Philosophical	0	0	2	2	0	0	0	0	0	0	2	<1
Product Development	1	2	0	0	0	0	0	0	8	8	9	2
Uncodable	0	0	1	<1	0	0	0	0	0	0	1	<1
TOTAL	53	100	114	100	95	100	100	100	97	100	459	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100.
Total number of dissertations studied, which generated this data, was 459.

Table 10 also presents the research strategies as they are represented across the twenty-year period studied. The prevalence of descriptive and quasi-experimental strategies and the small percentage of the true experimental and other strategies continued throughout the 20-year period researched, with no notable changes over time. A large increase was found to have occurred in causal-comparative research from the 1966-1969 period (N=2, 4%) to the 1970-1073 period (N=11, 10%). The causal comparative strategy then decreased to 9 studies (9%) for the 1974-1977 time span, followed by increases for both the 1978-1981 (N=12, 12%) and 1982-1985 (N=13, 13%) time periods. True experimental research also increased in the beginning of the twenty-year period studied. The strategy was utilized in only 8 studies (15%) during the 1966-1969 time span whereas the method increased in frequency to 19 studies (17%) for the 1970-1973 period. During 1974-1977, there was a decrease (N=13, 14%), then another increase during 1978-1981 (N=18, 18%), and, finally, a decrease to 10 studies (10%) in 1982-1985. Descriptive research increased in the beginning of the twenty-year period investigated, growing from 21 (40%) studies during the 1966-1969 time span to 48 studies (42%) during the 1970-1973 period, an increase of 27 studies. Thereafter, descriptive research decreased during the 1974-1977 period to 33 studies (35%), increased again during the 1978-1981 to 45 studies (45%), and declined to 30 studies (31%) in the final time period reviewed, 1982-1985.

Quasi-experimental research was used in 21 (40%) of the sport psychology dissertations studied for the time span 1966-1969. The strategy increased for the next two four-year periods studied (N=32, 28%, for 1970-1973 and N=39, 41%, for 1974-1977). Then the quasi-experimental method declined to 24 studies (24%) for the 1978-1981 period, but was reported to have increased to 35 studies (36%) for the final time period investigated in the present study. Case and field study research was identified in only one study in each of the following time periods, 1970-1973, 1974-1977, and 1982-1985. Action research was used only once in the entire twenty-year period investigated. The strategy was found during the 1982-1985 time period. Philosophical research was conducted twice as a part of dissertation inquiries, both reported during the 1970-1973

time period. Product development as a research strategy was noted once during the 1966-1969 time span. No further use of the technique was identified from 1970 through 1981. However, during the 1982-1985 time span, eight dissertations utilized the product development strategy. There was one dissertation among the 459 studied which had an undefinable research strategy.

Instrumentation

What standardized psychological instruments were used? What performance measures were used? What was the proportion of psychological instruments used in comparison to performance measures used? What proportion of the psychological instruments and performance measures were sport specific? How were both the psychological instruments and the performance measures distributed across the 20 year period of sport psychology dissertations being studied?

Psychological instruments were placed in one of the following categories upon completion of the coding phase for the purpose of analysis: (a) instrument was developed by the principal investigator for use in his/her study, INV, (b) instrument was listed in the Mental Measurements Yearbook, MMY, (c) instrument was unpublished, NON, and (d) instrument was an unpublished sport psychology instrument, SPT. None of the sport psychology instruments were listed in the Mental Measurements Yearbook. The frequency of each specific instrument is listed in Appendix N.

A one-way frequency distribution of the instruments used in sport psychology dissertations studied is presented in Table 11. Of the 459 dissertations, 278 (50%) of the dissertations used only one psychological instrument, 194 (24%) used two psychological instruments, 45 (10%) used three psychological instruments, and 4 (3%) used four different psychological instruments. Sixty-eight of the dissertations (10%) made no reference to an instrument. Multiple coding, as described in chapter 3, yielded 589 as the total number of times an instrument was was coded.

Most notable was that the largest number of dissertations (N=187) used standardized psychological inventories listed in the Mental Measurements Yearbook. Thirty-two percent of the total number of instruments coded in the present investigation

Table 11

Instrumentation Reflected in Sport Psychology Dissertations, 1966-1985

			Frequency of instrument utilized			
INSTRUMENT	N	PCT	Alone	With one other instrument	With two other instruments	With three other instruments
INV	99	17	54	32	12	1
MMY	187	32	115	59	12	1
NON	158	27	88	57	12	1
SPT	77	13	21	46	9	1
None Used	68	11				
TOTAL	589	100	278	194	45	4

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100.

Total number of dissertations studied, which generated this data, was 459.

Note. INV = instrument was developed by the principal investigator for use in his/her study;
MMY = instrument was listed in Mental Measurements Yearbook;
NON = instrument was an unpublished psychological instrument;
SPT = instrument was an unpublished sport psychology instrument.

were accounted for with standardized inventories. There were 158 unpublished psychological inventories (27%) and 99 investigator-produced inventories (17%) among the dissertations reviewed. The fewest instruments tabulated were those described as sport specific (N=77, 13%).

On completion of the coding phase, performance measures were grouped into the following categories: (a) cognitive task, COG, (b) fitness measure, Fit, (c) fine motor task, FMT, (d) general motor task, GEN, (e) gross motor task, GMT, (f) motor task battery, MTB, (g) physiological measure, PHY, and (h) sport specific task, SPT. Appendix O presents all components of each task category which were coded.

A one-way frequency distribution of the performance measure categories is presented in Table 12. Of the 459 dissertations reviewed, 170 (37%) of the dissertations used one category of performance measure, 86 (9%) used two performance measures, and 24 (2%) used three different performance measures. Of interest was the discovery that two-hundred and thirty-eight (46%) of the sport psychology dissertations did not utilize a performance measure. Multiple coding, as described in chapter 3, yielded 518 as the total number of times a performance measure was coded.

The largest number of dissertations using a performance measure were concerned with fitness measures (N=59, 11%) and gross motor tasks (N=59, 11%). Sport specific tasks were used in sport psychology dissertations studied 51 times (10%). Physiological measures (N=40) accounted for 8% of all of the tasks coded. The remaining performance measures were (a) fine motor tasks (N=33, 6%), (b) general motor tasks (N=16, 3%), (c) motor task batteries (N=16, 3%), and (d) cognitive tasks (N=6, 1%).

A comparison of the psychological instruments and the performance measures revealed that the former, psychological instruments, were used in 391 (85%) of the dissertations investigated (N=459); 238 (52%) studies were concerned with performance tasks. Sport specific psychological instruments were accounted for in 12% (N=85) of the total instruments coded (N=684). Sport specific performance measures were reported in 10% of the total tasks coded (N=518).

Table 12

Performance Measures Reflected in Sport Psychology Dissertations, 1966-1985

PERFORMANCE MEASURE	N	PCT	Frequency of performance measure used		
			Alone	With one other performance measure	With two other performance measures
Cognitive	6	1	3	2	1
Fitness	59	11	37	17	5
Fine Motor	33	6	13	13	7
General Motor	16	3	15	1	0
Gross Motor	59	11	33	23	3
Motor Task Battery	16	3	10	6	0
Physiological	40	8	16	19	5
Sport Specific	51	10	43	5	3
None Used	238	46			
TOTAL	518	100	170	86	24

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

Table 13 presents the findings concerning instrumentation across the twenty-year period studied. There were no real notable changes over the 20-year period investigated. Investigator-developed instruments, with the exception of a decrease from 22 studies (16%) during 1970-1973 to 15 studies (12%) for the 1974-1977 period, were the most consistently increased over the time investigated. In the 1982-1985 time span, 28 studies (21%) were reported which used investigator-developed instruments. Sport-specific instruments also increased in frequency of use among the dissertations investigated, rising from only 4 studies (6%) during the 1966-1969 period to 24 studies (18%) for the final 4-year period, 1982-1985. Instruments listed in the Mental Measurement Yearbook, after an initial increase in use from 24 (36%) to 45 (32%) studies (1966-1969 to 1970-1973), declined to 36 studies (27%) for the 1982-1985 time span. The use of unpublished instruments increased in sport psychology dissertations from 1966 through 1977 (from 22 studies, 33%, to 39 studies, 32%), but decreased to 31 studies (24%) for each of the remaining 4-year time periods. Dissertations that did not utilize instruments fluctuated over the 20-year period investigated.

Table 14 presents the performance measures as they were found in dissertations studied over the twenty-year period. Here, too, there lacked any noticable changes. An increase was observed in the use of general motor tasks and physiological measures. General motor tasks, with the exception of the 1974-1977 time span, increased from 1 study (2%) during the 1966-1969 period to 6 studies (6%) during 1982-1985. Physiological measures, although dropping from 14 studies (12%) during the 1978-1981 period to 8 studies (8%) for the 1982-1985 period, registered a consistent increase over the first 16 years investigated. Fitness measures, used in 18 studies (14%) during the 1970-1973 time span, decreased in use to 4 studies (4%) for the final 4-year time span, 1982-1985. Gross motor tasks also declined consistently in dissertations after the 1970-1973 period, from 18 studies (14%) to 9 studies (9%) for the 1982-1985 time span. Fine motor tasks and motor task batteries both fluctuated over the time investigated. Fine motor tasks, used in as many as 11 studies (8%) during the 1970-1973 time span, were found to be reported in only 4 studies (4%) for the final period, 1982-1985. Motor task

Table 13

Instrumentation Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

INSTRUMENT	1966-1969 N	1966-1969 PCT	1970-1973 N	1970-1973 PCT	1974-1977 N	1974-1977 PCT	1978-1981 N	1978-1981 PCT	1982-1985 N	1982-1985 PCT
INV	7	11	22	16	15	12	27	21	28	21
MMY	24	36	45	32	41	34	41	32	36	27
NON	22	33	35	25	39	32	31	24	31	23
SPT	4	6	15	11	13	11	21	16	24	18
None Use	9	14	24	17	13	11	9	7	13	10
TOTAL	66	100	141	100	121	100	129	100	132	100

Note. Displayed percentages do not all sum to 100 due to rounding; actual percentages sum to 100.

Total number of dissertations studied, which generated this data, was 459.

Note. INV = instrument was developed by the principle investigator for use in his/her study;
MMY = instrument was listed in Mental Measurements Yearbook;
NON = instrument was an unpublished psychological instrument;
SPT = instrument was an unpublished sport psychology instrument.

Table 14

Performance Measures Reflected in Sport Psychology Dissertations, 1966-1985, by Time Period

PERFORMANCE MEAS.	1966-1969 N	1966-1969 PCT	1970-1973 N	1970-1973 PCT	1974-1977 N	1974-1977 PCT	1978-1981 N	1978-1981 PCT	1982-1985 N	1982-1985 PCT
Cognitive	1	2	2	2	1	<1	1	<1	1	1
Fitness	12	20	18	14	14	13	11	10	4	4
Fine Motor	2	3	11	8	6	5	10	9	4	4
General Motor	1	2	3	2	4	4	2	2	6	6
Gross Motor	8	14	18	14	14	13	10	9	9	9
Motor Task Battery	4	7	6	5	1	<1	4	3	1	1
Physiological	2	3	4	3	12	11	14	12	8	8
Sport Specific	4	7	15	11	10	9	11	10	11	11
None Used	25	42	54	41	48	44	52	45	59	57
TOTAL	59	100	131	100	110	100	115	100	103	100

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

batteries fluctuated slightly over the 20-year period: 4 studies (7%) reported use of the battery during the 1966-1969 time span and only 1 study (1%) using a battery was reported in the final period, 1982-1985. Cognitive tasks were used the least number of times. They were found in only one dissertation in four of the five time periods investigated. In the years 1970-1973 two dissertations in sport psychology reported the use of cognitive tasks.

Crosstabulation: Major Characteristic With Psychological Construct

Aggression

Table 15 presents the psychological construct of aggression when considered (a) with each of the other psychological constructs investigated and (b) with each of the other major characteristics examined. The most notable observation concerning studies addressing aggression was the predominant use of athletes (54%) involved in team sports (52%).

Of the 459 dissertations determined to be psychological in nature, 22 addressed the psychological construct of aggression. In 19 of these dissertations (86%), aggression was the only construct investigated. Two of the dissertations examined aggression and personality (9%). The constructs designated as motivation and personality were studied in one dissertation (5%) that was concerned with aggression.

As noted above, college age subjects were used most frequently (N=14) in dissertations addressing the psychological construct of aggression. This subject age accounted for 45% of the total dissertations tabulated within this psychological category (N=31). Also, a number of aggression studies utilized senior high school students (N=6, 19%). Reported in less than 4 studies were young adults (N=3, 10%), middle adults (N=3, 10%), junior high school-aged subjects (N=2, 6%), older adults (N=2, 6%), and elementary-aged subjects (N=1, 3%). The preschool age group did not serve as subjects in any dissertations that dealt with aggression.

With respect to gender, male subjects were reported in 13 of the dissertations on aggression. This constituted 59% of the total number of studies of aggression which

Table 15

Frequency of Construct AGGRESSION by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject.Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Aggression	19	86
Motivation & Personality	1	5
Personality	2	9
TOTAL	22	

GENDER	N	PCT
Male	13	59
Female	5	23
Both	4	18
TOTAL	22	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	0	0
Exercise	0	0
General Activity	2	8
Individual Sport	6	24
Motor Task	1	4
Team & Individual Sports	2	8
Team Sport	13	52
Not Applicable	1	4
TOTAL	25	

AGE	N	PCT
Preschool	0	0
Elementary	1	3
Junior H.S.	2	6
Senior H.S.	6	19
College	14	45
Young Adult	3	10
Middle Adult	3	10
Older Adult	2	6
Uncodable	0	0
TOTAL	31	

GROUP AFFILIATION	N	PCT
Athlete	15	54
Coach	0	0
Community	1	4
Handicapped	1	4
Other	7	25
Professional	0	0
School Related	2	7
Student	2	7
Uncodable	0	0
TOTAL	28	

RESEARCH STRATEGY	N	PCT
Action	0	0
Causal Comparative	3	14
Case/Field Study	1	5
Descriptive	9	41
Philosophical	0	0
Product Development	0	0
Quasi-experimental	9	41
True Experimental	0	0
Unknown	0	0
TOTAL	22	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

made reference to subject gender (N=22). Among the remaining studies, females were subjects for 5 and both females and males for 4.

Also pointed out above was the finding that the group affiliation category most frequently represented in the dissertations on aggression were athletes (N=15, 54%). Seven of the aggression studies (25%) accounted for members of the group labeled "other". The remaining categories, each constituting less than 10% of the total studies on aggression, were school-related (N=2), students (N=2), community (N=1), and handicapped (N=1). Coaches and professional athletes were not used in any of the dissertations addressing aggression.

With respect to sports/physical activities studied, team sports were most predominant, accounting for 52% (N=13) of the total number of sport psychology dissertations on aggression (N=25). Individual sports were the next most popular activity reported (N=6) accounting for 24% of the studies on aggression that were reviewed. The remaining sport/physical activity categories reported in studies addressing aggression, but each accounting for less than 10% of its total, were general activities (N=2), team and individual sports (N=2), and motor tasks (N=1). None of the studies concerned with aggression involved subjects from the class and exercise category. Also, the sports category did not apply in four percent (N=1) of the studies in aggression.

Descriptive research (N=9) and quasi-experimental research (N=9) were the predominant research strategies utilized in the dissertations investigating aggression. These strategies accounted for 82% of the methods associated with this construct. The causal comparative research strategy was utilized in three dissertations. Case and field strategy was used in only 1 study. The remaining research strategies were not used.

Anxiety

Table 16 presents the psychological construct of anxiety when considered (a) with each of the other psychological constructs investigated and (b) with each of the other major characteristics examined. A notable finding was the use of quasi-experimental strategies, utilized in 52% of the studies.

Table 16

Frequency of Construct ANXIETY by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d) Group Affiliation (e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Anxiety	36	47
Attention	2	3
& Intervention	2	3
Attitude	1	1
Behavior Modif.	1	1
Group Dynamics	3	4
Intervention	14	18
Motivation	10	13
& Personality	2	3
Personality	6	8
TOTAL	77	

GENDER	N	PCT
Male	33	43
Female	24	31
Both	20	26
TOTAL	77	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	4	5
Exercise	6	7
General Activity	7	8
Individual Sport	28	33
Motor Task	23	27
Team & Individual Sports	2	2
Team Sport	14	17
Not Applicable	0	0
TOTAL	84	

AGE	N	PCT
Preschool	0	0
Elementary	9	9
Junior H.S.	6	6
Senior H.S.	8	8
College	55	56
Young Adult	10	10
Middle Adult	7	7
Older Adult	3	3
Uncodable	0	0
TOTAL	98	

GROUP AFFILIATION	N	PCT
Athlete	26	33
Coach	2	3
Community	3	4
Handicapped	3	4
Other	4	5
Professional	1	1
School Related	1	1
Student	40	50
Uncodable	0	0
TOTAL	80	

RESEARCH STRATEGY	N	PCT
Action	0	0
Causal Comparative	6	8
Case/Field Study	0	0
Descriptive	14	18
Philosophical	0	0
Product Development	0	0
Quasi-experimental	40	52
True Experimental	17	22
Unknown	0	0
TOTAL	77	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

Forty-seven percent of the 77 dissertations addressing anxiety investigated only the one psychological construct. Intervention, as expected, was studied quite frequently with anxiety (N=14), accounting for another 18% of those dissertations examining anxiety. Ten of the studies investigated both anxiety and motivation, 10% of the dissertations reviewed. Numerous other psychological constructs were also studied in the dissertations addressing anxiety; but these occurred in less than 10% of the total number of dissertations dealing with anxiety. These were: (a) personality (N=6), (b) group dynamics (N=3), (c) attention (N=2), (d) attention and intervention (N=2), (e) motivation and personality (N=2), (f) attitutes (N=1), and (g) behavior modification (N=1).

College age subjects were used most frequently as subjects in dissertations addressing anxiety, involved in 56% (N=55) of the dissertations. Next in frequency of representation were young adults (N=10, 10%) followed in decending order of frequency by (a) elementary-aged subjects (N=9, 9%), (b) senior high school subjects (N=8, 8%), (c) middle adults (N=7, 7%), (d) junior high school subjects (N=6, 6%), and (d) older adults (N=3, 3%). No preschool age subjects were reported in dissertations dealing with anxiety.

Male subjects were the predomantly represented gender. They were coded in 43% (N=33) of the anxiety-designated studies. Female subjects accounted for 31% (N=24) of the dissertations addressing anxiety. Both male and female subjects took part in 26% (N=20) of the dissertations classified among the anxiety studies.

Findings for group affiliations revealed that students were represented in 50% (N=40) of the studies. Athletes took part in another 26 (33%). The remaining categories, each accounting for less than 10% of the total dissertations on anxiety, were "other" (N=4), community (N=3), handicapped (N=3), coaches (N=2), professional athletes (N=1), and school related (N=1).

With respect to sports/physical activities accounted for in dissertations addressing anxiety, it was found that individual sports were represented by subjects most frequently (N=28, 33%). Forty-four percent of the dissertations dealing with

anxiety involved motor tasks (N=23,27%) and team sports (N=14, 17%). General activities, exercise, class, and team and individual sports each accounted for less than 10% of the dissertations on anxiety.

Quasi-experimental research methods were used in 52% of the dissertations on anxiety. This strategy was found in 40 of the 77 disssertations addressing the psychological construct. True experimental research strategies were used in 17 of the anxiety studies (22%). The remaining strategies reported in the studies reviewed were, in decending order, descriptive research (N=14, 18%) and causal comparative strataegies (N=6, 8%). No other research strategies were reported.

Attention

Table 17 presents characteristics associated with the psychological construct attention. It presents findings considered (a) with each of the other psychological constructs investigated and (b) with each of the other major characteristics examined.

Attention was a concern in eight of the 459 dissertations examined as a part of the present inquiry. Most obvious was the finding that attention was examined most often with another psychological construct. As a single construct, e.g., univariate study, it was addressed in only two of the eight studies (25%). It was studied as one of two constructs in four of the dissertations, with anxiety in two dissertations and intervention in two other studies. Two more dissertations investigated attention once, with group dynamics and with motivation.

College age subjects were accounted for in 45% of the 11 dissertations addressing attention (N=5). Also represented in the dissertations were middle adults and young adults, each accounting for 18% (N=2) of the studies on attention. Two other age categories were represented in studies of attention by junior high school subjects (N=1, 9%), and older adults (N=1, 9%). The senior high school and elementary age groups were not involved in dissertations about attention.

Male subjects and female subjects were used equally (N=3, 38% each) for the studies on attention which made reference to subject gender. The gender category representing both male and female subject represented 25% (N=2) of the total

Table 17

Frequency of Construct ATTENTION by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Attention	2	25
Anxiety	2	25
& Intervention	2	25
Group Dynamics	1	12
Motivation	1	12
TOTAL	8	

GENDER	N	PCT
Male	3	38
Female	3	38
Both	2	25
TOTAL	8	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	0	0
Exercise	0	0
General Activity	0	0
Individual Sport	4	50
Motor Task	2	25
Team & Individual Sports	0	0
Team Sport	2	25
Not Applicable	0	0
TOTAL	8	

AGE	N	PCT
Preschool	0	0
Elementary	0	0
Junior H.S.	1	9
Senior H.S.	0	0
College	5	45
Young Adult	2	18
Middle Adult	2	18
Older Adult	1	9
Uncodable	0	0
TOTAL	11	

GROUP AFFILIATION	N	PCT
Athlete	4	44
Coach	1	11
Community	0	0
Handicapped	0	0
Other	1	11
Professional	1	11
School Related	0	0
Student	2	22
Uncodable	0	0
TOTAL	9	

RESEARCH STRATEGY		
Action	0	0
Causal Comparative	1	13
Case/Field Study	0	0
Descriptive	1	13
Philosophical	0	0
Product Development	1	13
Quasi-experimental	3	38
True Experimental	2	25
Unknown	0	0
TOTAL	8	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

dissertations on attention (N=8).

Athletes represented the affiliation group of subjects in 4 of the dissertations on attention (44%); students were involved in 2 dissertations (22%). Eleven percent (N=1 each) of the subjects were coaches, "others" and professionals. No community members, handicapped, and school-related subjects were used in attention studies.

The most frequently represented sport/physical activity in studies on attention was the category of individual sports, focused in 4 (50%) of the 8 dissertations addressing attention. Motor tasks and team sports were the type of sports/physical activites accounted for in 25% of the dissertations, (N=2 each). Class, exercise, general activity, and team and individual sports categories were not found in the dissertations reviewed.

Thirty-eight percent of the dissertations on attention used a quasi-experimental research strategy (N=3). Other methods identified in the review of dissertations addressing attention were the true experimental strategy (N=2, 25%), causal comparative (N=1, 13%), descriptive (N=1, 13%), and product development (N=1, 13%). Action, case and field, and philosophical research methods were not used.

Attitudes

Table 18 presents the findings associated with the psychological construct of attitude considered (a) with each of the other psychological constructs investigated and (b) with each of the other major characteristics analyzed. There was no unique finding or predominant pattern concerning this construct. Attitude was studied most frequently as the lone construct in the research, accounting for 47% (N=9) of the 19 dissertations on attitude. The construct designated as personality was also examined with attitude in 8 of the studies. One dissertation each addressing attitude was concerned with (a) anxiety and (b) motivation and personality.

Thirty-seven percent of the dissertations which investigated attitudes (N=27) were based on information collected from college age subjects (N=10). Other attitudes considered were those of (a) middle adults (N=4), (b) young adults (N=4), (c) elementary students (N=3), and (d) students in senior high school (N=3). Junior high school

Table 18

Frequency of Construct ATTITUDE by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Attitude	9	47
Anxiety	1	5
Motivation & Personality	1	5
Personality	8	42
TOTAL	19	

GENDER	N	PCT
Male	8	42
Female	3	16
Both	8	42
TOTAL	19	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	5	23
Exercise	2	9
General Activity	0	0
Individual	4	18
Motor Task	2	9
Team & Individual Sports	1	5
Team Sport	5	23
Not Applicable	3	14
TOTAL	22	

AGE	N	PCT
Preschool	0	0
Elementary	3	11
Junior H.S.	2	7
Senior H.S.	3	11
College	10	37
Young Adult	4	15
Middle Adult	4	15
Older Adult	1	4
Uncodable	0	0
TOTAL	27	

GROUP AFFILIATION	N	PCT
Athlete	7	32
Coach	3	14
Community	0	0
Handicapped	3	14
Other	0	0
Professional	0	0
School Related	0	0
Student	9	41
Uncodable	0	0
TOTAL	22	

RESEARCH STRATEGY	N	PCT
Action	0	0
Causal Comparative	2	11
Case/Field Study	0	0
Descriptive	13	68
Philosophical	0	0
Product Development	0	0
Quasi-experimental	4	21
True Experimental	0	0
Unknown	0	0
TOTAL	19	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

students were involved in two of the studies on attitudes while older adults took part in only one study. The preschool age group was not considered by researchers investigating attitude.

Both male subjects and the analysis group designated as both males and females were used an equal number of times in dissertation research about attitudes. Each was found in 8 (42%) of the 19 dissertations addressing attitudes. Female subjects were used in only three of the attitute studies (16%).

The student category, among those considered as group affiliations, accounted for 9 (41%) of the dissertations on attitutes. Considered in 7 more of the attitude studies (32%) were athletes. Coaches and handicapped subjects were each represented in 3 (14% each) of these studies. The remaining group affiliation categories were not involved in the dissertations addressing attitudes.

Physical education classes served as the designated physical activity in 5 of the 22 dissertations dealing with attitutes (23%). Also found in 5 of the attitude dissertations was the sport/physical activity category labeled team sports. Individual sports was represented in 4 more of the dissertations. Accounted for by less than 10% of the dissertations on attitude were the sport/physical activity categories designated as (a) exercise (N=2), (b) motor tasks (N=2), and (c) team and individual sports (N=1). No sport/physical activity category was represented in 3 (14%) of the dissertations addressing attitude; nor was the category labeled "general activities" identified among the studies.

Descriptive research was the strategy employed in 68% (N=13) of the dissertations addressing attitudes. Also used in the studies on attitudes were (a) the quasi-experimental research method (n=4, 21%) and the causal comparative strategy (N=2, 11%). The remaining five research methods were not used by dissertation researchers.

Behavior Modification

Table 19 presents findings pertaining to the psychological construct of behavior modification when considered (a) with each of the other psychological constructs

Table 19

Frequency of Construct BEHAVIOR MODIFICATION by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Behavior Modif.	11	73
Anxiety	1	7
Group Dynamics	1	7
& Personality	1	7
Motivation	1	7
TOTAL	15	

GENDER	N	PCT
Male	5	33
Female	6	40
Both	4	27
TOTAL	15	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	1	7
Exercise	1	7
General Activity	1	7
Individual Sport	4	27
Motor Task	4	27
Team & Individual Sports	0	0
Team Sport	4	27
Not Applicable	0	0
TOTAL	15	

AGE	N	PCT
Preschool	0	0
Elementary	3	11
Junior H.S.	3	11
Senior H.S.	2	8
College	8	31
Young Adult	3	11
Middle Adult	5	19
Older Adult	2	8
Uncodable	0	0
TOTAL	26	

GROUP AFFILIATION	N	PCT
Athlete	6	32
Coach	3	16
Community	0	0
Handicapped	1	5
Other	1	5
Professional	0	0
School Related	0	0
Student	8	42
Uncodable	0	0
TOTAL	19	

RESEARCH STRATEGY	N	PCT
Action	0	0
Causal Comparative	0	0
Case/Field Study	0	0
Descriptive	4	27
Philosophical	0	0
Product Development	0	0
Quasi-experimental	8	53
True Experimental	3	20
Unknown	0	0
TOTAL	15	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

investigated and (b) with each of the other major characteristics examined. This was the only construct in which female subjects were used more than male subjects.

Behavior modification was found in 15 dissertations reviewed in the present study. Among them, 11 examined only behavior modification, accounting for 73% of the total number of dissertations in this classification. The remaining dissertations studied behavior modification along with anxiety (N=1), group dynamics (N=1), group dynamics and personality (N=1), and motivation (N=1).

Dissertations addressing behavior modification involved college age subjects in 8 of the studies (31%) and middle adults in 5 of the studies (19%). Elementary students, junior high school students, and young adults were each subjects of behavior modification studies three times (11%). Older adults and senior high school students were accounted for twice (8%). The preschool category was not included in any dissertations about behavior modification.

Female subjects were used most frequently in behavior modification studies, constituting 40% (N=6) of the 15 studies reviewed on behavior modification. The remaining 9 dissertations addressing behavior modification involved male subjects (N=5, 33%) and both male and female subjects (N=4, 27%).

Students were most frequently associated with behavior modification dissertations. They were found to be a part of 8 (42%) of the studies. Frequency of affiliation further revealed that athletes took part in 6 of the behavior modification studies (32%) and coaches were found in 3 of the studies (16%). Two other group affiliations which were coded in the dissertations on behavior modification were handicapped (N=1, 5%), and "others" (N=1, 5%). Community, professional, and school related groups were not involved in the study of behavior modification as reported in sport psychology dissertations.

Three sport/physical activity categories, individual sports, motor tasks, and team sports, accounted for 4 studies each (27%) in the dissertations addressing behavior modification. Three other sport/physical activity categories which accounted for the remainder of the behavior modification studies were class, exercise, and general

activities (N=1, 7%). No affiliations of subjects were found with team and individual sports.

Quasi-experimental research methods were employed in 53% of the dissertations addressing behavior modification (N=8). Also used in dissertations addressing behavior modification were descriptive research strategies (N=4, 27%) and true experimental research strategies (N=3, 20%). The remaining five methods of research were not used.

Group Dynamics

Table 20 presents findings about the psychological construct of group dynamics when considered (a) with each of the other psychological constructs investigated and (b) with each of the other major characteristics examined. Unique to this construct was the predominance in use of both male and female coaches.

Of the 48 dissertations which addressed group dynamics, 34 investigated this psychological construct by itself, accounting for 71% of the total. Studied with group dynamics in 4 dissertations each were motivation and personality (8% each). Anxiety was the subject of inquiry with group dynamics in 3 dissertations (6%). Attention, behavior modification, and behavior modification with personality were each found to be studied in the group dynamics dissertation.

The most frequently found age category in dissertations addressing group dynamics were middle adults and young adults (N=21, 23% each). The age categories referred to as "college" and "older adults" each were involved in 18 (19%) of the dissertations on group dynamics. Other age categories found in group dynamic studies were (a) elementary (N=7, 8%), (b) senior high school (N=5, 5%), (c) junior high school (N=2, 2%), and (d) preschool (N=1, 1%).

With respect to gender, both male and female subjects were found in 25 of the dissertations addressing group dynamics (52%). Also identified in group dynamic studies were males only (N=13, 27%) and females only (N=10, 21%).

Among dissertations addressing group dynamics, the group affiliation designated as "coaches" was studied most frequently, constituting 34% (N=18) of the 48 studies examined in the present research. Other affiliations accounted for in the group

Table 20

Frequency of Construct GROUP DYNAMICS by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Group Dynamics	34	71
Anxiety	3	6
Attention	1	2
Behavior Modif.	1	2
& Personality	1	2
Motivation	4	8
Personality	4	8
TOTAL	48	

GENDER	N	PCT
Male	13	27
Female	10	21
Both	25	52
TOTAL	48	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	1	2
Exercise	4	8
General Activity	3	6
Individual Sport	5	10
Motor Task	13	25
Team & Individual Sports	2	4
Team Sport	22	43
Not Applicable	1	2
TOTAL	51	

AGE	N	PCT
Preschool	1	1
Elementary	7	8
Junior H.S.	2	2
Senior H.S.	5	5
College	18	19
Young Adult	21	23
Middle Adult	21	23
Older Adult	18	19
Uncodable	0	0
TOTAL	93	

GROUP AFFILIATION	N	PCT
Athlete	12	23
Coach	18	34
Community	1	2
Handicapped	0	0
Other	0	0
Professional	0	0
School Related	5	9
Student	17	32
Uncodable	0	0
TOTAL	53	

RESEARCH STRATEGY	N	PCT
Action	0	0
Causal Comparative	7	15
Case/Field Study	0	0
Descriptive	21	44
Philosophical	0	0
Product Development	0	0
Quasi-experimental	10	21
True Experimental	10	21
Unknown	0	0
TOTAL	48	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

dynamic studies were students (N=17, 32%) and athletes (N=12, 23%). Found in the group dynamic dissertations, but each accounting for less than 10% of the studies were school related subjects (N=5) and community members as subjects (N=1). Handicapped, "others", and professional subjects were not found.

Team sports was the most frequently identified category (N=22, 43%) in the dissertations addressing group dynamics. Motor tasks (N=13, 25%) and individual sports (N=5, 10%) were also associated with group dynamics dissertations. Accounting for less than 10% each of the group dynamic studies were (a) exercise (N=4), (b) general activities (N=3), (c) team and individual sports (N=2), and (d) class (N=1). No sport and/or physical activity was reported in 1 (2%) of the studies addressing group dynamics.

Forty-four percent (N=21) of the dissertations addressing group dynamics utilized the descriptive research strategy. Quasi-experimental (N=10, 21%), true experimental (N=10, 21%), and causal comparative (N=7, 15%) strategies were also found among group dynamics dissertations. No other methods of research were used in the studies reviewed.

Intervention

Table 21 presents findings revealed by the analysis of dissertations concerned with the psychological construct of intervention when considered (a) with each of the other. psychological constructs investigated and (b) with each of the other major characteristics examined. With the exception of the construct motivation, intervention was the only construct which was studied in doctoral dissertations most frequently with motor tasks.

There were a total of 38 dissertations which addressed intervention. Eighteen (47%) of those investigated intervention as the only construct examined. Not surprising, anxiety was studied along with intervention in 14 of the 38 dissertations. Other psychological constructs which were involved in intervention dissertations were (a) anxiety and attention (N=2), (b) motivation (N=2), and (c) personality (N=2).

Table 21

Frequency of Construct INTERVENTION by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Intervention	18	47
Anxiety	14	37
& Attention	2	5
Motivation	2	5
Personality	2	5
TOTAL	38	

GENDER	N	PCT
Male	11	29
Female	9	24
Both	17	45
None	1	2
TOTAL	38	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	4	10
Exercise	4	10
General Activity	3	8
Individual Sport	10	26
Motor Task	12	31
Team & Individual Sports	1	3
Team Sport	4	10
Not Applicable	1	3
TOTAL	39	

AGE	N	PCT
Preschool	0	0
Elementary	2	4
Junior H.S.	1	2
Senior H.S.	3	7
College	25	54
Young Adult	7	15
Middle Adult	4	9
Older Adult	3	7
Uncodable	1	2
TOTAL	46	

GROUP AFFILIATION	N	PCT
Athlete	13	33
Coach	1	3
Community	2	5
Handicapped	3	8
Other	1	3
Professional	0	0
School Related	0	0
Student	18	46
Uncodable	1	3
TOTAL	39	

RESEARCH STRATEGY	N	PCT
Action	1	3
Causal Comparative	0	0
Case/Field Study	0	0
Descriptive	1	3
Philosophical	0	0
Product Development	2	5
Quasi-experimental	25	66
True Experimental	9	24
Unknown	0	0
TOTAL	38	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

College age subjects were the most frequently found subject age group in intervention studies, accounting for 54% (N=25) of the dissertations in this category. Young adults were involved in 7 (15%) of the dissertations addressing intervention. Also found, but each accounting for less than 10% of the dissertations on intervention were (a) middle adults (N=4), (b) older adults (N=3), (c) senior high school students (N=3), (d) elementary students (N=2), and (e) junior high school students (N=1). Preschool was not referred to in any of the intervention dissertations.

Concerning gender, both males and females were involved in 45% (N=17) of the studies about intervention. Male subjects (N=11) and female subjects (N=9) together accounted for another 53% of the dissertations addressing intervention. Gender was not identifiable in one study (2%) about intervention.

The group affiliation of subjects most frequently reported in dissertations on intervention were "students" (N=18, 46%). In 33% (N=13) of the intervention studies athletes were a part of the research. Affiliation groups each accounting for less than 10% in studies on intervention were (a) handicapped (N=3), (b) community (N=2), (c) coaches (N=1), and (d) others (N=1). Professional and school related categories were not referred to in intervention studies.

Twelve of the dissertations (31%) addressing intervention reported motor tasks as the sport/physical activity. Individual sports accounted for 26% (N=10) of the studies on intervention. Other sports/physical activities reported in the intervention studies were (a) class activities (N=4, 10%), (b) exercise (N=4, 10%), (c) team sport (N=4, 10%), (d) general exercise (N=3, 8%), and (e) team and individual sports (N=1, 3%). Three percent of the dissertations investigating intervention did not refer to any particular sport or physical activity.

The quasi-experimental research method was employed in 66% (N=25) of the dissertations addressing intervention. The second most frequently utilized research strategy in intervention studies was the true experimental method (N=9, 24%). Other research strategies employed in dissertations about intervention were product

development (N=2), action (N=1), and descriptive (N=1). The remaining strategies were not used in the dissertations investigating intervention.

Motivation

Table 22 presents findings revealed by the analysis of the psychological construct of motivation when considered (a) with each of the other psychological constructs investigated and (b) with each of the other major characteristics examined. Most notable was that motivation studies accounted for 129 of the 459 dissertations and was the second most popular construct studied in doctoral dissertation research. Investigated most often by itself (N=84, 65%), motivation was also studied with the psychological construct of personality (N=23, 18%). Anxiety was examined along with motivation in 10 of the dissertations examined. Other constructs investigated with motivation dissertations, but each accounting for less than 5%, were (a) group dynamics (N=4), (b) intervention (N=2), (c) anxiety and personality (N=2), (d) aggression and personality (N=1), (e) attention (N=1), (f) attention and personality (N=1), and (g) behavior modification (N=1).

College age subjects were employed as subjects most frequently in the studies on motivation (N=77, 44%). Also involved in more than 20% of the motivation studies were young adults (N=21) and elementary students (N=19). Accounting each for less than 10% of the dissertations addressing motivation were (a) middle adults (N=16), (b) senior high school students (N=16), (c) junior high school students (N=13), (d) older adults (N=13), and (e) preschool-aged subjects (N=1).

Studies involving male and female subjects and investigations of male-only subjects were found in an equal number of dissertations on motivation (N=50, 39% each). Female subjects took part in 27 of the dissertations on motivation (21%). Gender was not identified in two (1%) of the studies on motivation.

Students represented the group affiliation in 61 (42%) of the studies addressing motivation. Other group affiliations which, when combined, accounted for more than 41% of the dissertations on motivation, were athletes (N=43) and "others" (N=17). The remaining subjects found to be involoved in motivation dissertations were (a) community

Table 22

Frequency of Construct MOTIVATION by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Motivation	84	65
Aggression & Personality	1	<1
Anxiety & Personality	10	8
	2	2
Attention & Personality	1	<1
	1	<1
Behavior Modif.	1	<1
Group Dynamics	4	3
Intervention	2	2
Personality	23	18
TOTAL	129	

GENDER	N	PCT
Male	50	39
Female	27	21
Both	50	39
None	2	1
TOTAL	129	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	3	2
Exercise	13	9
General Activity	23	16
Individual Sport	31	21
Motor Task	35	24
Team & Individual Sports	8	5
Team Sport	26	18
Not Applicable	7	5
TOTAL	146	

AGE	N	PCT
Preschool	1	<1
Elementary	19	11
Junior H.S.	13	7
Senior H.S.	16	9
College	77	44
Young Adult	21	12
Middle Adult	16	9
Older Adult	11	6
Uncodable	2	1
TOTAL	176	

GROUP AFFILIATION	N	PCT
Athlete	43	29
Coach	5	3
Community	8	5
Handicapped	5	3
Other	17	12
Professional	3	2
School Related	2	1
Student	61	42
Uncodable	2	1
TOTAL	146	

RESEARCH STRATEGY	N	PCT
Action	0	0
Causal Comparative	13	10
Case/Field Study	0	0
Descriptive	41	32
Philosophical	2	2
Product Development	1	1
Quasi-experimental	37	29
True Experimental	34	26
Unknown	1	1
TOTAL	129	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

(N=8), (b) coaches (N=5), (c) handicapped (N=5), (d) professional (N=3), and (e) school related (N=2).

The greatest number of dissertations addressing motivation examined subjects who performed some type of motor task (N=35, 214%). Sports/physical activities which were also identified in the motivation studies were (a) individual sports (N=31), (b) team sports (N=26), and (c) general activities (N=23). Other sports/physical activities found in the motivation studies were (a) exercise (N=13), (b) team and individual sports (N=8), and (c) class (N=3). The sport/physical activity category was not identified in 7 (5%) of the motivation dissertations that were examined.

Thirty-two percent (N=41) of the dissertations addressing the psychological construct of motivation used the descriptive research method. Quasi-experimental research methods accounted for 29% of the motivation studies. True experimental methods were used in 26% of the studies. Also found in studies on motivation were (a) causal comparative (N=13), (b) philosophical (N=2), and (c) product development (N=1) research strategies. Action research and case and field studies were not used in any of the dissertations investigating motivation.

Personality

Table 23 presents findings derived from the analysis of the psychological construct, personality, when considered (a) with each of the other psychological constructs investigated and (b) with each of the other major characteristics examined. The most important observation was personality was studied most frequently in 203 of the 459 sport psychology dissertations investigated in the present study. Of this number, 153 (75%) of the personality dissertations were concerned with personality as the lone construct. Motivation was the next most frequently studied construct with personality (N=23). The remaining dissertations about personality also investigated (a) attitudes (N=8), (b) anxiety (N=6), (c) group dynamics (N=4), (d) aggression (N=2), (e) anxiety and motivation (N=2), (f) intervention (N=2), (g) aggression and motivation (N=1), (h) attitudes and motivation (N=1), and (i) behavior modification and group dynamics (N=1).

Table 23

Frequency of Construct PERSONALITY by (a) Other Psychological Constructs, (b) Subject Age, (c) Subject Gender, (d)Group Affiliation(e) Sport/Physical Activity, and (f) Research Strategy

CONSTRUCT	N	PCT
Personality	153	75
Aggression	2	1
& Motivation	1	<1
Anxiety	6	3
& Motivation	2	1
Attitude	8	4
& Motivation	1	<1
Group Dynamics	4	2
& Behavior Mod.	1	<1
Intervention	2	1
Motivation	23	11
TOTAL	203	

GENDER	N	PCT
Male	97	48
Female	53	26
Both	52	26
None	1	<1
TOTAL	203	

SPORT/PHYSICAL ACTIVITY	N	PCT
Class	22	10
Exercise	24	11
General Activity	15	7
Individual Sport	50	22
Motor Task	23	10
Team & Individual Sports	17	7
Team Sport	65	29
Not Applicable	11	5
TOTAL	227	

AGE	N	PCT
Preschool	0	0
Elementary	19	6
Junior H.S.	20	7
Senior H.S.	40	14
College	119	40
Young Adult	52	18
Middle Adult	33	11
Older Adult	13	4
Uncodable	0	0
TOTAL	296	

GROUP AFFILIATION	N	PCT
Athlete	74	32
Coach	17	7
Community	15	6
Handicapped	10	4
Other	22	9
Professional	4	2
School Related	12	5
Student	80	34
Uncodable	0	0
TOTAL	234	

RESEARCH STRATEGY	N	PCT
Action	0	0
Causal Comparative	22	11
Case/Field Study	2	1
Descriptive	106	52
Philosophical	0	0
Product Development	6	3
Quasi-experimental	55	27
True Experimental	12	6
Unknown	0	0
TOTAL	203	

Note. Displayed percentages do not all sum to 100 due to rounding: actual percentages sum to 100. Total number of dissertations studied, which generated this data, was 459.

College age subjects were found most frequently, N=119 (40%), in the studies of personality. The next most popular age groups reported in the dissertations on personality were (a) young adults (N=52), (b) senior high school students (N=40), and (c) middle adults (N=33). Other age categories found in the personality studies were (a) junior high school students (N=20), (b) elementary (N=19), and (c) older adults (N=13). Preschool-age subjects were not involved in the personality research.

Male subjects were reported most predominantly in dissertations addressing personality. Male subjects were accounted for in 97 (48%) of the total dissertations investigating personality. Female subjects were found in 53 (26%) of the dissertations on personality. Both males and females took part in 52 (26%) of the investigations of personality. Gender was not identified in one (.1%) of the studies on personality that were reviewed.

Students represented the group affiliation in 80 (34%) of the dissertations addressing personality; athletes were found in 74 (32%) of the studies. The remaining group affiliations found in the personality research were (a) "others" (N=22), (b) coaches (N=17), (c) community (N=15), (d) school related (N=12), (e) handicapped (N=10), and (f) professional athlete (N=4).

Twenty-nine percent of the dissertations addressing the psychological construct of personaltiy studied team sports (N=65). Individual sports were studied in 50 (22%) of the dissertations. Other sport/physical activities found in the research on personality were (a) exercise (N=24), (b) motor tasks (N=23), (c) class (N=22), (d) team and individual sports (N=17), and (e) general activities (N=15). No sports or physical activities were identified in 11 (5%) of the personality studies.

Descriptive research strategy was used most frequently in dissertations addressing personality, identified in 106 (52%) of the studies. Fifty-five of the personality dissertations used a quasi-experimental research strategy (27%). Other research strategies found among the research in personality dissertations were (a) causal comparative (N=22), (b) true experimental (N=12), (c) product development (N=6),

and (d) case and field study (N=2). Action research and philosophical research were not used for personaltiy studies.

Summary

An analysis of psychological constructs, subject ages, subject genders, subject group affiliation, sports and/or physical activities, research strategy, and instrumentation found in the 459 doctoral dissertations investigated in the present study was conducted. One-way frequency distributions and two-way crosstabulations were used to generate the descriptive data that characterized the studies. Results, as presented in chapter five, revealed some telling information about the state of sport psychology research. In addition, trends over the twenty-year period 1966-1985 were identified for each characteristic under investigation.

CHAPTER V

DISCUSSION

The present investigation identified and analyzed specific characteristics of sport psychology dissertations from 1966 to 1985 to determine possible trends in the dissertation research. Using a content analysis research technique, data were determined for the following characteristics: (a) psychological construct, (b) subject age, gender and group affiliation, (c) sport and/or physical activity, (d) research strategy, and (e) instrumentation. Given the vast amount of information identified and organized in this research review, the discussion of the results is limited to that which the principal investigator considered most relevant with regard to her major intent in conducting the study. The following comments, derived from the findings, address the purposes of this research.

Psychological Constructs

Landers, Boutcher, and Wang (1986) examined specific characteristic of manuscripts submitted to the Journal of Sport Psychology from 1979 to 1985 in an attempt to determine possible "trends" in the sport psychology research. One of the characteristics they analyzed was the "topical areas of research". Referred to as "psychological constructs" in the present investigation, a comparison of the two studies is warranted.

Both studies reported the same five topics of psychology most frequently studied in sport psychology research, namely, (a) motivation, (b) intervention, (c) anxiety, (d) group dynamics, and (e) personality. The frequencies of these five topics in Landers' et al. (1986) study were not the same as the findings in the present investigation. For example, manuscripts addressing the construct "personality" were published the least number of times in the professional journal, Journal of Sport Psychology, while in the sport psychology dissertation research, "personality" was addressed most frequently. In

their discussion, Landers et al. (1986) reported many personality manuscripts had been rejected because "of relatively unsophisticated comparisons (athlete vs. nonathlete, fit vs. unfit)" (p. 160). The popularity of personality research in the dissertations examined may have occurred because of the wide variety of instruments measuring various personality concepts which were easily available to the doctoral student. Also, what was considered "unsophisticated" by professional standards, may have been considered acceptable for some beginning researchers, i.e., the doctoral student. It should also be noted that the personality research reported in sport psychology dissertations was most prevalent during the 1970-1973 time period (N=54), while only 34 dissertations addressed personality during 1982-1985. Perhaps the appropriateness of personality research by doctoral students was starting to be challenged following 1973, some reasons being (a) the difficulty in interpreting results, (b) the "mixed-bag" of findings, and/or (c) the lack of specific meaning for sport performance. The above concerns may explain the decline in personality research by doctoral students.

Given the mixed opinions of the profession toward "applied" sport psychology, it was interesting to find such an increase of studies addressing "intervention" submitted to the Journal of Sport Psychology, from 33 studies during the 1979-1981 time period to 56 studies during 1982-1985. However, Landers' et al. (1986) investigation included opinion and position papers along with research papers. This may have accounted for the number of manuscripts about intervention. The early 1980s marked the time when much of the debate over acceptance of applied sport psychology by physical educators occurred. This does not, however, explain the studies on intervention reported in the sport psychology dissertation research. Although much fewer in number, there were, nevertheless, 4 dissertations on intervention from 1970-1973 and 11 dissertations addressing intervention from 1974-1977. Intervention was being researched by doctoral students before the inception of the Journal of Sport Psychology, and continued to be investigated by doctoral students during 1978-1981 (N=10) and 1982-1985 (N=13). The relatively "on-going interest" in intervention among graduate students in sport psychology substantiates past concerns of some leaders in the field (Danish & Hale,

1981, 1982; Nideffer, Feltz, & Salmela, 1982; Dishman, 1983) regarding needed qualifications to practice applied techniques, e.g., intervention, the type of training necessary, and the type of certification that should be required. If these issues continue to be unresolved among sport psychology leaders, it is little wonder that the notion of "professional" sport psychologist is confused. Perhaps more urgent is the need of a clear definition of "applied sport psychology". For example, instructing an athlete in some form of mental practice would not be considered equivalent to a psychodynamic-based evaluation of an athlete. Training and certification considerations for these two "applied" techniques call for different skills and knowledge.

Studies addressing "group dynamics" increased both in Landers' et al. (1986) study from 1979-1985 and in the present investigation from 1966-1985. This may suggest more "social-psychological" approaches to studying certain populations by taking into account such concerns as "significant others", "audience effect", and "cohesion". Another explanation may be associated with the broad generality of the term, group dynamics.

Subject Gender

Landers et al. (1986) reported males were studied more than females from 1979-1985. In fact, despite the inception of Title IX in 1972, which mandated equal opportunities in sports for women, the number of females used in the studies reported in the Journal of Sport Psychology decreased over the time period investigated by Landers. In 1979, 56% of the manuscripts reported using male subjects and 44% used female subjects. In 1985, the use of male subjects had increased to 66%, while the use of female subjects had decreased to 34%. Sport psychology dissertation research did not follow the trend prevalent in the professional literature of sport psychology. In fact, during 1978-1981 there were fewer male subjects in sport psychology dissertation research than females.

The present investigation also considered "Both" to indicate both male and female subjects were studied. The "Both" category revealed a consistent increase over the twenty-year time period investigated while the "Male" category decreased over this

same time period. These results clearly suggested the interest in use of female subjects increased and this was reflected in the dissertation research.

Subject Age

Results for both Landers' et al. (1986) research and the present investigation regarding the age of the subjects revealed college-aged students as the predominant choice for subjects of sport psychology research. This has been the trend in general psychology research as well, and has resulted, in part, because of the availability of college subjects to both the professional researcher and the doctoral student. It is unfortunate in that results from such studies cannot be generalized to other populations, restricting the findings to the college athlete and/or student. One exception to this general finding concerned the psychological construct, "group dynamics". More young adults and middle-aged adults were studied relative to this construct than college-age subjects. A review of the sub-topics considered under the "group dynamics" construct (Appendix I), revealed that many topics addressed coaches and/or adults in a leadership role. This accounts for the number of subjects over 24 years of age.

Group Affiliation

Landers' et al. (1986) research placed subjects into the following categories: (a) athlete, (b) non-athlete, and (c) coach. The present investigation of doctoral research in sport psychology presented a more diverse analysis of group affiliations, therefore, comparisons were difficult to achieve. Landers et al. (1986) did note in their investigation that, of the 52% classified as "athlete", 60% of those were college athletes. Findings of sport psychology dissertation research revealed 32% (N=175) of the subjects whose group affiliation was studied (N=543) were athletes. With the exception of the category referred to as "professional athlete" (N=7), there was no further refinement of athletic involvement. The large number of college age subjects used in dissertation research implies a large number of athletes studied in the sport psychology dissertation research were, in fact, college athletes. Also, the large number of athletes used, combined with the frequency of team and individual sports involvement tabulated in the

present study, may mean that the researchers relied on "intact" groups instead of random sampling in the research design.

Sport and/or Physical Activity

Although fluctuating over the time period investigated, team sports and individual sports dominated the type of activity reported in the sport psychology dissertations. If sport psychology is, indeed, a subdiscipline of physical education, research should be expanded to include more aspects of movement. "Sport", although the most known to the lay person, represents only one aspect of the discipline of physical education. This idea may not be important to the body of knowledge of sport psychology, but it does relate to the organization and integrity of fields of study in higher education. Physical educators have taken great pride in the recognition of their field as an intellectual as well as a physical subject matter curriculum. Given sport psychology is more often than not "housed" in departments of physical education, then, broader concerns of the art and science of movement should be systematically investigated.

The writer noted with interest the decline in use of motor tasks in sport psychology dissertations following 1973. Perhaps the initial popularity of motor tasks stemmed from their use in motor learning research, a precursor to sport psychology. The findings, relative to the time periods examined, would suggest this was the case. Additional explanations for this finding may be associated with the long-time issue of generality-versus-specificity in skill performance. If one studies a tightly-controlled finite task execution in place of the performance of tasks in the larger context of a game or sport, is the object of the research the same? There may have been in recent years a distinct effort to study sport behavior as close to the "real" context as possible.

Research Strategy

Descriptive research strategies were utilized most frequently in the sport psychology dissertations investigated, followed by the quasi-experimental method. These findings were consistent with results reported by Gillis" (1986) and Tritschler (1985). True experimental research was used in only 68 of the 459 sport psychology

dissertations reviewed. If the subdiscipline of sport psychology hopes to gain in credibility through the development of theories of sport psychology, theory testing requires the rigor of true experimental testing. This does not suggest other research strategies do little in contributing to the body of knowledge of sport psychology. There is a place for multivariate studies. Perhaps what is important for the future of sport psychology is the quality of the research it produces.

All research must be evaluated with regard to the "quality" of the design and the research strategy which best fits that design. Although behaviors observed out in the sport environment are not always easy to duplicate within the laboratory setting, strides should be made toward more true experimental research when the concern is theory development.

Martens' (1979) plea for more field based research was not manifest in the sport psychology dissertations investigated, nor was it evident in Landers' et al. work (1986). While it is acknowledged that there is validity in inductively-oriented research strategies, the move toward field research may be premature given the limited availability of theories in sport psychology established from rigorous true experimental studies.

Instrumentation

Psychological instruments listed in the Mental Measurements Yearbook, along with unpublished psychological instruments constituted the majority of measurement tools utilized in the sport psychology dissertations examined. This finding may be considered both good and bad. The use of such instrumentation suggested the doctoral student sought information about the usefulness of tests to his/her study by weighing its characteristics, reliability and validity in past research. It must be noted, however, that many of the instruments listed in the Mental Measurements Yearbook, as well as the unpublished instruments, were developed previously for explanations of deviant behaviors and did not apply to the healthy individual.

As if in reply to this dilemma, the next obvious step was to develop specific sport psychology instruments. During the time period investigated, there appeared a

limited number of sport psychology instruments of which none were listed in the Mental Measurements Yearbook. In addition, those that were utilized in the dissertation research had a limited history of use. On the positive side of these results, one might argue that testing of instruments must begin somewhere in order to eventually establish validity. Therefore, it was reassuring to know there were those in the field, doctoral students among them, who had contributed to this process.

"Performance measures", a part of the question posed concerning instrumentation, revealed "fitness" measures and "gross motor" measures used most frequently. Fitness measures declined in popularity over the 20-year period examined while sport specific measures increased. This suggested a growing interest in the subdiscipline for more "sport performance-based" measures. This would also reflect the predominance of team sports, individual sports, and motor tasks as the sport/physical activities used over this 20-year period. Motor tasks fluctuated in use, but remained popular as a performance measure throughout the period investigated. The small usage of performance measures was a revealing observation.

Investigator's Personal Observations

Throughout the process of researching and writing this dissertation, the writer was continually overwhelmed at the vast number of topics addressed in sport psychology. If one considers doctoral dissertations in sport psychology as representative of the overall trend in sport psychology research, the results suggest findings may be nothing more than, as Iso-Ahola and Hatfield suggested, "an undirected accumulation of data" (1986, p. 36). More of the same type of undirected research can only likely add to the confusion.

The results generated by this analysis of sport psychology dissertations the past two decades drew the writer back to earlier literature addressing sport psychology. The reader is directed to Whiting's Readings in Sports Psychology (1972) in which some psychological principles were applied to the sport setting. Especially interesting, and relevant to this investigation, was a statement by Whiting regarding the future of sport psychology as a recognized subdiscipline of physical education. He stated:

> Research findings are inevitably fractionated to a greater or lesser degree and it is difficult to apply such findings until they have been integrated into some conceptual whole. Such integration can only be fully brought about where a two-way process exists between laboratory instrumentation and experiment on the one hand and field observation and experience on the other. . . Without such a two-way exchange of information and problems, sports psychology is likely to experience a slow and rather sterile development. (pp. 2-3)

Whiting's description of an exchange of laboratory results and field observation appeared to be missing in both the dissertation research and the professional literature addressing sport psychology, yet the subdiscipline of sport psychology moved forward into topics of applied psychology. The "move" by some sport psychologists into the applied arena of sport psychology seemed to occur rapidly given the state of knowledge of the field. Books written in late 1970s and early 1980s attested to the support evident among some leaders in sport psychology for a move toward application of some psychological principles to the sport setting. Some of these were: Coach, Athlete, and the Sport Psychologist (Klavora & Daniel, 1979); Psyching in Sports (Rushall, 1979); The Athlete in the Sports Team (Cratty & Hanin, 1980); Psychology in Sports: Methods and Applications (Suinn, 1980); and The Ethics and Practice of Applied Sport Psychology (Nideffer, 1981). What was, and is still missing in sport psychology is, what Whiting referred to as "the conceptual whole". It is no wonder that the writer was perplexed by the variety of information gained through her review of sport psychology dissertations. The subdiscipline of sport psychology is at one and the same time unmanageable and exciting when contemplated by a doctoral student. Whether or not these phenomena may be causally related is open to question.

Perhaps scholars who conduct research in sport psychology and advise future sport psychologists need to take a step back in order to move the sub-discipline forward. A reanalysis of the specific content of sport psychology by a "think-tank" of scholars who might collectively set useful guidelines for directing future research may assist in the development of a more "directed" design for future research in the subdiscipline. One of the first questions to address could be "What role, if any, should the research of the beginning scholar -- the doctoral student -- play in contributing to the body of

knowledge of a field?" Is it realistic to expect doctoral dissertation research to push back the boundaries of knowledge by investigating new issues, theory-building, or creatively conceptualizing problematic areas? Or, given the nature of academic demands for conformity, should dissertation research merely validate or confirm existing knowledge? Or, is there something in between the aforementioned? Who would better be able to address these questions in the interest of the field -- sport psychology -- and higher education than a group of scholars who "have been there".

Also, a more directed subdiscipline may help alleviate the demands placed on the researcher as "educator". It is an unfortunate trend in higher education that educators must be knowledgeable and versatile in the vast content now identified in sport psychology. Such demands undermine the effective instructional strategies available to researchers/educators in the discipline. A more directed subdiscipline may make it feasible for sport psychology educators-researchers to be selective, as well as comprehensive, in what they teach and research.

In spite of the fact that such direction might have a limiting effect on the creative potentials within the field of study and of some individuals, discovery, per se, seems to have been a rare exception in research completed to date. Considering the breadth of sport psychology, beginning researchers, e.g., doctoral students might, in the opinion of the writer, grow more as scholoars capable of becoming creative producers of research if their field of endeavor were more comprehensive.

Summary

The data generated by this investigation was both confounding and enlightening. It suggests that varied and abundant research does not necessarily lead to theory. It is the writer's belief that sport psychology must make more concerted efforts to build valid theories if it is to develop into a meaningful subdiscipline of physical education. Only through high quality, concentrated and directed research of clearly-defined constructs can sport psychologists hope to achieve continued academic recognition.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

The purpose of this investigation was to examine specific characteristics of sport psychology doctoral dissertations produced in graduate programs in the United States between 1966 and 1985. A content analysis research technique was employed to investigate the following characteristics in sport psychology dissertation research: (a) psychological construct, (b) age, gender and group affiliation of subjects, (c) sport and/or physical activity associated with the research, (d) instrumentation used, and (f) research strategy employed.

Using guidelines established by Krippendorff (1980), two trained coders and the principal investigator analyzed masters theses abstracts selected from Completed Research in Health, Physical Education, and Recreation, and doctoral dissertation abstracts selected from Dissertation Abstracts International, 1986-1987 (n=60), in order to establish the reliability of the data collection instrument. Five trials were necessary to achieve the predetermined reliability coefficient of .90 on all the characteristics coded. Thereafter, the principal investigator analyzed 680 dissertation abstracts considered as "social-psychological" studies by Gillis' (1986). Also, Gillis' procedures were followed to obtain social-psychological dissertation abstracts for the years 1984-1985. These were included in the 680 abstracts reviewed.

Upon completion of the tabulation, those dissertations addressing only sociological constructs were eliminated from further study. Determination as to the exclusion of sociological constructs was made following a comparison of the literature addressing sport psychology with writings in sport sociology. The final number of sport psychology dissertation abstracts examined in the present investigation was 459.

Categories were established for each characteristic examined in the sport psychology dissertations. In addition, guidelines for determining a classification scheme for "research strategies" previously established by Gillis' (1986) were included in the present investigation. To determine trends in the sport psychology dissertation research, the twenty-year period investigated was examined in five 4-year periods, 1966-1969, 1970-1973, 1974-1977, 1978-1981, and 1982-1985. One-way frequency distributions and crosstabulations were then applied to the data. The problems associated with multiple-coding made an inferential statistical analysis inappropriate.

Conclusions

Responses to the questions posed at the outset of this study are offered below as conclusions to the present inquiry. The concise answers derive directly from the data obtained and analyzed as described in chapter 3.

1. What subject matter associated with psychology did students of sport psychology find to be relevant to sport? More specifically:

    a. What were the substantive topics of psychology studied in the sport psychology dissertation research?

    Personality and motivation were the constructs researched most frequently. Attention was addressed the least number of times. Other constructs studied in sport psychology dissertation research were (a) aggression, (b) attitudes, (c) behavior modification, (d) intervention, and (e) group dynamics.

    b. How were the topics of psychology distributed across the 20 year period studied?

    Research addressing group dynamics increased consistently over the twenty year period. Anxiety and intervention also increased in frequency as well. However, anxiety, attention, behavior modification, and intervention were not studied at all during the 1966-1969 time span. Personality and attitude both decreased in frequency in the dissertations reviewed following the 1970-1973 time period. The motivation construct fluctuated as a topic of inquiry over the twenty-year period.

2. What were the characteristics of the subject populations studied in the sport psychology dissertation research? More specifically:

a. What were the characteristics of the subject populations studied with respect to age, gender, and group affiliation?

The most frequently studied subjects were males aged 19-23. Young adults, aged 24-40, also participated in a large number of the sport psychology dissertations. Preschool and junior high school aged subjects were utilized as subjects the least number of times. Also, students and athletes accounted for the majority of group affiliations tabulated in the sport psychology dissertations.

b. Did studies in different topics of sport psychology focus on specific subject populations?

Studies addressing group dynamics focused on both male and female coaches and students. The majority of subjects were in the age range of 24 to 60.

c. How were the different characteristics of the subject populations distributed across the 20 year period of sport psychology dissertations studied?

Preschool aged children were subjects in only two studies. Both were completed between 1978-1981. Use of middle aged adults and older adults as subjects increased consistently over the 20 year period investigated. The remaining age classifications increased from the first to the second four-year time period (1966-1969 to 1970-1973) and fluctuated up and down the remaining years. Young adults, although fluctuating somewhat, were found to increase as subjects fairly consistently over the time period examined.

All gender categories increased from the first to the second time period. A decrease in use of males subjects followed and an up and down fluctuation in the use of female subjects was found. The "both" category, which designated males and females as subjects, increased consistently over the entire 20 year period investigated.

With the exception of professional athletes and school related subjects, all group affiliations considered increased from the first to the second time period. Athletes continued to increase as subjects until 1982. The use of coaches in the sport psychology dissertation research, with the exception of the 1974-1977 time period, increased between 1966 and 1985. Except for the 1978-1981 time period, handicapped individuals increased as subjects over the 20 year period. The remaining group affiliation categories, community, professional athletes, school related subjects, students, and "other", fluctuated up and down from 1966-1985.

3. What were the sport and or physical activities studied in the sport psychology dissertation research? More specifically:

a. What was the specific sport or physical activity used in the study?

Team sports and individual sports were the most represented sports/physical activities in the sport psychology dissertation research. The sports most frequently associated with the research were (a) basketball, (b) football, (c) swimming, (d) tennis, and (e) gymnastics. Following the popularity of team and individual sports in frequency in the sport psychology dissertations researched was motor tasks.

b. Did the various sport psychology dissertations focus on specific sports or physical activities?

Anxiety and intervention studies were most associated with individual sports and motor tasks. The majority of personality, group dynamics, behavior modification, and attention research occurred in studies involving team and individual sports. Also, 52% of the sport psychology dissertations addressing aggression involved team sports. Motor tasks, as well as team and individual sports, made up the majority of physical activities found in motivation studies.

c. How were the sport/physical activities distributed across the 20 year period of sport psychology dissertations studied?

There was some fluctuation over the 20 year period, but individual sports were less frequent at the end of the total time period examined (compared to

the beginning of the 20 years studied), while team sports increased in popularity. Also, motor tasks declined as a part of sport psychology research following the 1970-1973 time period.

4. What research methodologies characterized sport psychology dissertations? More specifically:

a. What were the predominant research strategies utilized in the sport psychology dissertation research?

Descriptive research and quasi experimental research strategies were utilized the most frequently in sport psychology dissertations considered between 1966 and 1985. Action and philosophical research strategies were used the least number of times.

b. How were the research strategies distributed across the 20 year period of sport psychology dissertations being studied?

Causal comparative research increased fairly consistently over the 20 year period except for a slight decrease from 1974-1977. The majority of true experimental studies were reported from 1970 through 1981. Descriptive and quasi experimental research strategies continued to dominate the research throughout the 20 year period examined. Of the nine sport psychology dissertations employing a product development strategy, eight of the studies were reported during the 1982-1985 time period.

c. Did the various sport psychology topics use specific research strategies?

Most of the true experimental research strategies focused on studies addressing anxiety, intervention and motivation. Quasi-experimental research strategies were utilized in more than fifty percent of the anxiety, behavior modification and intervention studies examined. Attitude and personality research relied on descriptive research strategies most frequently.

5. What was the nature of instrumentation employed in the sport psychology dissertations research? More specifically:

a. What standardized psychological instruments were used?

The psychological instruments used most frequently in the sport psychology dissertations were (a) Cattell's 16 Factor Personality Questionnaire, (b) Speilberger's State-Trait Anxiety Scale, and (c) The Tennessee Self Concept Scale.

b. What performance measures were used?

The performance measures used most frequently in the sport psychology dissertations examined were (a) the common "game stats", (b) bicycle ergometer, (c) pursuit rotor, and (d) stabilometer.

c. What was the proportion of psychological instruments used in comparison to performance measures used?

Psychological instruments were used in 391 (85%) of the dissertations investigated. Two hundred and thirty-eight (52%) studies from the 459 dissertations examined were concerned with performance tasks.

d. What proportion of the psychological instruments and performance measures were sport specific?

Sport-specific psychological instruments were accounted for in 85 (12%) of the total instruments reported (N=684). Sport-specific performance measures were reported in 51 (10%) of the total performance measures tabulated (N=518).

6. Are any implications evident with respect to the field of study of sport psychology from the answers obtained to the above questions?

The findings from this investigation suggests that graduate research conducted in the subdiscipline of sport psychology over the 1966-1985 time span was fragmented and diffuse. This gives some support to the need for coordination, by means of guidance, if such beginning level research is to make a contribution to the developing body of knowledge of the field. For example, those in an advisory position for graduate study, specifically, doctoral dissertation research, might step back and take another look at where sport psychology has been over the past twenty years. The sheer array of subject matter found in the sport psychology dissertation research attests to the lack of focus in the study of psychology when applied to the sport and physical activity setting.

Moreover, the prevalence of college students and athletes used as subjects of this research suggests there is only a narrow population to which generalizations may be made. The use of psychological instruments to objectively measure different aspects of behavior in "healthy" subjects suggested the subdiscipline was, and possibly still is, more a subdiscipline of psychology than physical education. Finally, the prevalence of descriptive and quasi-experimental research, and the lack of case and field study, suggested graduate students in sport psychology were following the research trends evidenced in the published research by sport psychologists. Perhaps it is time to reconsider the purpose(s) of doctoral student research in the light of present day realities of higher education. Such thoughtful reconsideration, the writer suggests, should be undertaken by sport psychology researchers who themselves have commitments to the education of graduate students.

Last but far from least, the experience of working through the arduous process of studying doctoral research productions leads the writer to a revealing "confession". If she could reconcile her interests and biases with the standards for research production in higher education, she might convince herself to become a behaviorist! Then, the confoundedness of specific meanings of constructs, the measurements of sport psychology phenomena and the interpretation of findings might be far more managable, although somewhat less exciting. The present dissertation reinforces the point of view that deductive research is more easily accomplished by the "emerging scholar" than a secondary review. And what does this awareness bode for the future pressure to publish or perish? Perhaps time will tell.

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APPENDIX A. Gillis Procedures for Determining Data Base

The following was taken from Gillis (1987) in an article written for Quest, 39(2), in which she outlined the procedures she followed in obtaining data for her dissertation, Doctoral Dissertations in Physical Education: A Twenty-Year Protrait, completed in 1986 at The University of North Carolina - Greensboro.

Procedures

Three documentary sources were used to identify the dissertations to be studied: (a) Dissertation Abstracts International (July 1963 through June 1985), (b) Completed Reseasrch in Health, Physical Education, and Recreation, (1963 through 1983), and (c) American Doctoral Dissertations (1963 through 1984). Abstracts in the Physical Education section of Dissertation Abstracts were established as the primary listings. Dissertations listed in Completed Research and American Doctoral Dissertations were successively matched against the primary Dissertation Abstracts listings to ensure that the final population of dissertations consisted of unique listings. A total of 5,344 doctoral dissertations completed in the United States between 1964 and 1983 were identified. Of these, 4,342 were listed in the Physical Education section of Dissertation Abstracts, 661 were in other sections of Dissertation Abstracts (targeted by entries in Completed Research or American Doctoral Dissertations), 280 were only in Completed Research, and 61 were listed only in American Doctoral Dissertations. Seven elements of each of the 5,344 abstracts were entered into a master computer file: (a) author's name, (b) brief dissertation title, (c) institution awarding degree, (d) year degree conferred, (e) degree, (f) advisor(s), if listed, and (g) reference citation information. An eighth objective element, doctoral program prestige, was obtained from the physical education doctoral program prestige rankings developed by Massengale (1981).

The taxonomy of academic specialties presented by Zeigler (1982, 1983) was selected as the framework for coding the dissertation abstracts according to academic specialty. The labels for the eight academic specialties are unique but parallel more common terminology. For example, functional effects parallels exercise physiology, and program development parallels curriculum and instruction. The taxonomy was worked into a series of categories and decision rules that maximized the accuracy and reliability of coding decisions. Similiarly, the taxonomy of research strategies presented by Isaac and Michael (1981) was selected as the basic framework for coding the dissertation abstracts according to the research strategy each one employed.

Two coders worked with the principal investigator to establish a separate index of interrater reliability for each of the three types of entries (DAI abstracts, CRE abstracts, ADD titles) for each of the two variables to be coded (academic speciality and research strategy). Using the method suggested by Krippendorff, (1980, pp. 136-139), six reliability coefficients were calculated. The final coefficients obtained for academic specialty coding were DAI = .03, CRE = .89, and ADD = .85.

The principal investigator coded each of the 5,344 abstracts/titles listed in the master file over a 10-week period. The two reliability coders provided consistency checks throughout the coding process. As the principal investigator worked through the 25 blocks of abstracts, one of the two coders (alternately) coded a 5% sample from the block the principal investigator completed. Two reliability coefficients (academic specialty and research strategy) were calculated for each completed block. For academic specialty coding, the average individual coding block reliability coefficient was .91 and the final cumulative coefficient was .92.

APPENDIX B. Coding Sheet #1

CODING SHEET #1

SUBJECT_____ YEAR_____

A. CONSTRUCT
Code(s)_____ Other_____
Comments_____

B. SUBJECT CHARACTERISTICS
Age Code(s)_____ Gender Code(s)_____
Level ofskill Code(s)_____ Other_____
Comments_____

C. SPORT/PHYSICAL ACTIVITY CONTEXT
Sport(s)_____
Phy.Act.Cont. Code(s)_____
Comments_____

D. INSTRUMENTATION
a. psychological instrument(s)_____
b. instrument characteristic_____
c. performance measure_____
d. sport specific_____
Comments_____

INSTRUCTIONAL CODING SHEET

Note: If not applicable, please write "NA".
If uncodable, write "UC" and give comments.

A. PSYCHOLOGICAL CONSTRUCT STUDIED
Denote by corresponding number which construct(s) was studied.
1-Personality
2-Anxiety, arousal, & performance
3-Modeling, behavior modification
4-Motivation
5-Aggression
6-Group dynamics
7-Exercise & well-being
8-Methodology
9-Intervention and mental practice
10-Youth sports
11-Professional issues
12-Sport socialization
13-Sport sociology

B. SUBJECT CHARACTERISTICS
Denote by corresponding number which characteristic(s) was studied. If not listed, write in.
AGE 1-up to 8 years
2-8 to 18
3-19 to 25
4-26 to 49
5-50+

GENDER 1-Female 2-Male
Code(s) _____

LEVEL OF SKILL 1-elementary school athletes
2-junior high school athletes
3-high school athletes
4-college athletes
5-Olympic/elite athletes
6-professional athletes
7-non-athletes

C. SPORT/PHYSICAL ACTIVITY CONTEXT
a. Denote which sport(s), if applicable, was used in the study.
b. Denote by corresponding number which physical activity context(s), if applicable, was used in the study.
1-Instructional, e.g., physical education class
2-Competitive, e.g., little leagus
3-Recreational, e.g., intramurals
4-Field study
5-Laboratory and other structured research setting, e.g., where subject executes motor task

D. INSTRUMENTATION
   a. Denote by name which psychological instrument(s), if applicable, was used in the study.
   b. Denote if the instrument is standardized paper and pencil test, survey response form, etc.
   c. Denote which performance measure(s), (if applicable), was used in the study. (Examples: fine motor task, gross motor tack, etc.)
   d. Denote if either the psychological instrument or performance measure was sport specific.

APPENDIX C. Krippendorff's Formula for Determining Reliability

unit i: (abstract #)		1	2	3	4	5	6	7	8	9	
	A	1	2	2	2	4	2	5	1	3	
coder:	B	1	2	1	2	4	2	5	1	3	
	C	1	2	3	2	4	2	5	1	3	
codes:	n1	3		1					3		n_1 = 7
	n2		3	1	3		3				n_2 = 10
	n3			1						3	n_3 = 4
	n4					3					n_4 = 3
	n5							3			n_5 = 3

In order to understand the formula used for determining reliability coefficients, an example is presented above using data collected from sport psychology dissertation abstracts. This example is based upon nine abstracts, each coded by three coders, each coding the characteristic AGE. Following is a breakdown of this example revealing where the numbers are generated for use in Krippendorff's formula.

CODES: All of the words, numbers, and/or characters written on the coding sheet by each coder which signified their report of the characteristic AGE. In the above data set there are five descriptors (codes) of AGE reported across all nine of the dissertation abstracts coded:
Code 1 = Uncodable
Code 2 = College
Code 3 = Adult
Code 4 = 18-37
Code 5 = Primary

In the above example, coders A, B, and C's response (Code #) for each of the nine dissertation abstracts coded is entered in the upper portion of the figure. In the lower half of the figure, the number of coders coding a specific code on each abstract is placed on the line representing that code. For example, "n1" equals the code for "Uncodable". In this example, all three coders coded the "Uncodable" code (the number "1") for abstract (unit) number 1 and 8, but only one coder coded the number "1" for abstract number 3. In fact, our example reveals that abstract number 3 was coded differently by all three coders (n1, n2, and n3).

Also shown in the lower half of the figure is the total of each code (n_1, n_2, n_3, n_4, and n_5), listed on the right side of the figure. For example, "Uncodable" was coded a total of 7 times in the nine abstracts. The values are now ready to be substituted into the formula.

$$\alpha = 1 - \frac{rm-1}{m-1} \frac{\sum_i \sum_b \sum_{c>b} n_{b_i} n_{c_i} d_{bc}}{\sum_b \sum_{c>b} n_b n_c d_{bc}}$$

Note. From Content Analysis; An Introduction to Its Methodology (p. 139) by K. Krippendorff, 1980, London: Sage Publications.

$$\sum_i \sum_b \sum_{c>b} n_{b_i} n_{c_i} d_{bc} = n_{1_3} n_{2_3} + n_{1_3} n_{3_3} = 1 \cdot 1 + 1 \cdot 1 = 2$$

$$\sum_b \sum_{c>b} n_b n_c d_{bc} = n_1 n_2 + n_1 n_3 + n_1 n_4 + n_1 n_5 +$$
$$n_2 n_3 + n_2 n_4 + n_2 n_5 +$$
$$n_3 n_4 + n_3 n_5 + n_4 n_5 =$$
$$7 \cdot 10 + 7 \cdot 4 + 7 \cdot 3 + 7 \cdot 3 +$$
$$10 \cdot 4 + 10 \cdot 3 + 10 \cdot 3 +$$
$$4 \cdot 3 + 4 \cdot 3 + 3 \cdot 3 = 273$$

$$= 1 - \frac{9 \cdot 3 - 1}{3 - 1} \left(\frac{2}{273}\right) = 1 - \left(\frac{26}{2}\right)\left(\frac{2}{273}\right) = 1 - \frac{52}{546} = 1 - .0952$$

$$= .9048$$

With r = 9 and m = 3 coders, the coefficient measures:

The resulting coefficient from our example of AGE data is .9048. This tells us that the coders agreed 90% of the time on what they coded for the characteristic AGE.

APPENDIX D. Coding Sheet #2

CODING SHEET #2

SUBJECT_____
YEAR_____

CONSTRUCT

____PERSONALITY
____ANXIETY, AROUSAL
____INTERVENTION, BEHAVIOR MODIFICATION
____MOTIVATION
____AGGRESSION
____GROUP DYNAMICS
____SOCIO-PSYCHO
____SPORT SOCIOLOGY
____OTHER (Please specify)_____

POPULATION

____MALE
____FEMALE
____BOTH
____UNSPECIFIED

	ATHLETE	NON-ATHLETE
Elementary	____	____
Jr. H.S.	____	____
High School	____	____
College	____	____
Older Adult	____	____
Unspecified	____	____

*If not specified "athlete", assume subjects were non-athletes.

SPORT/PHYSICAL ACTIVITY CONTEXT

____SPORT(s) (Please specify)_____

____Took place in/with skill class.
____Took place in/with fitness class.
____Took place in/with team.
____Took place in/with intramurals.
____Took place in/with recreational environment.
____Took place in laboratory.
____Was a field study.
____Unspecified

INSTRUMENTATION

____A psychological assessment tool was used. (Please specify)
_____
____A sport specific assessment tool was used. (Please specify)
_____
____Assessment tool used but unspecified.
____Assessment tool was being developed in the study.

APPENDIX E. Coding Sheet #3

CODING SHEET #3

YEAR_____
SUBJECT_____

INDEPENDENT AND DEPENDENT VARIABLES

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

SUBJECT AGE (May be denoted by age, school level, or other defining characteristic. Include all information.)

_____
_____
_____
_____

GENDER OF SUBJECTS _____.

SPORTS INVOLVED _____
_____
_____
_____
_____
_____

PHYSICAL ACTIVITY INVOLVED _____
_____
_____

WHERE SUBJECTS SELECTED FROM _____
_____
_____
_____

ASSESSMENT TOOLS (Psychological, performance, general measurement)
*Please specify when assessment tool was being developed for the study or WAS the study.

_____
_____
_____
_____
_____

APPENDIX F. Coding Sheet #4

CODING SHEET #4

AUTHOR NAME_____
YEAR_____
SUBJECT NUMBER_____

A. SOCIAL-PSYCHOLOGICAL VARIABLES

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
UNDEFINABLE_____

B. SUBJECT AGE (May be denoted by age, school level, or other defining characteristic. Include all information.)

_____
_____
_____
_____
UNDEFINABLE_____

C. GENDER OF SUBJECTS

_____
UNDEFINABLE_____

D. SPORTS AND/OR PHYSICAL ACTIVITY INVOLVED

_____ _____
_____ _____
_____ _____
_____ _____
UNDEFINABLE_____
WAS THE SPORT/PHYSICAL ACTIVITY IDENTIFIED AN INTEGRAL PART OF THE STUDY?_____

E. POPULATION FROM WHICH SUBJECTS WERE SELECTED

_____
_____
_____
UNDEFINABLE_____

F. ASSESSMENT TOOLS (Psychological, performance, general measurement)
*Please specify when assessment tool was being developed for the study or WAS the study.

_____
_____
_____
_____
_____
UNDEFINABLE_____

APPENDIX G. Final Coding Sheet

FINAL CODING SHEET

AUTHOR NAME_____
YEAR_____
SUBJECT NUMBER_____

A. SOCIAL-PSYCHOLOGICAL VARIABLES

_____
_____
_____
_____
UNDEFINABLE_____

B. SUBJECT AGE (May be denoted by age, school level, or other defining characteristic. Include all information.)

_____
_____
_____
UNDEFINABLE_____

C. GENDER OF SUBJECTS (M, F, Both)

_____
UNDEFINABLE_____

D. SPORT(s)/PHYSICAL ACTIVITY/MOTOR TASK ASSOCIATED WITH THE SUBJECT IN THE STUDY

_____ _____
_____ _____
_____ _____
_____ _____
UNDEFINABLE_____

E. HOW WAS THE POPULATION FROM WHICH SUBJECTS WERE DRAWN DEFINED? (Could include athletes, nonathletes, intramural particpants, special olympics, students, etc.)

_____
_____
_____
UNDEFINABLE_____

F. ASSESSMENT TOOLS (Psychological, performance, general measurement)
*Please specify when assessment tool was being developed for the study or WAS the study.

_____
_____
_____
_____
_____
UNDEFINABLE_____

APPENDIX H. Sociology Topics Eliminated from the Study

Attitudes toward recreaction as measured by age, sex, ethnic grp
Sportsmanship attitudes
Religion, magical function
Race, socio-economic status
Social adjustment
Content - sport magazines
Recreation in Asia
Minoan art
Social and cultural factors
Meaning of movement
Parental attitudes and child creativity
Spectator aggression
Lifestyles
Integrated athletic competition
Status position effect
Sibling-sex-status, ordinal position
Sex, race, socio-economic level
Parental and peer expectations
Football attendance - economics
Masculinity-feminity
Friendship
Communication and conversation effectiveness
Sex role orientation
Games - Eskimos
Socialization
Famous athlete influence
Interpersonal relationship
Social influences
Role national government in sport
Women in sport via magazines
Creativity of black, culturally deprived children
Modern sport and national policy
Roe'stheory and vocational groups
Role of sport in England and U.S.
Professional socialization
Political socialization
Role of physical education in Nigeria
Vocation of athletic letter winners vs losers
Early life factors of professional players
Church's influence on recreational activity
Counter culture
Football participation of blacks and whites
Group attraction
Social stereotyping
Sub-cultural
Social values
Female in physical domain
Mexican and American competition in sport
Social attitudes and philosophical definition of sport
Hero - boxers
Little league
Sport preference (theory development)

Geographical location and sport participation
Leisure activity of community and H.S. sport influence
Family cohesion, social strata
Female socialization
Social profile of professional ski instructor
College environment
Sport and socialization
Reduction of distance between races through sport participation
Emphasis on winning - sociological perspective
Institutional sanction of girls sports program
Rituals - Basketball
Racial attitudes
Lifestyles of physical education teachers
Modernization and its effect on play - Filipino children
Future of leisure
Analysis of leisure time
Sports and occupational attainment
Social attitudes
Student development in intramural sports
Arab children's play
American Indian
Politicization - Olympics
Sex-related competition
Women's intercollegiate athletics
Ethnographic study of physical education teachers
Socio-historical analysis
Female movement vocabulary
Organized play
Equality of men and women
Education aspiration and sport participation
Contemporary karate
Team composition and sex (gender)
Play, games and sport
Navajo Basketball
Professional literature on difference between blacks and whites
Orientation toward winning - gender
Social control
Subculture and public image
Special olympics
Blacks in women's sports
Athletic organization management systems
Forced retirement
Equality of opportunity to play
Self-disclosure to coaches by athletes
Spectators
Socialization of wheelchair athletes
Dyadic interaction
Team play
Sociomoral reasoning - ethics
Social facilitation
Sex-appropriateness of sport
Youth sport - Soviet Union
Marital satisfaction of professional football players
Football recruiting - geographical analysis

APPENDIX I. Psychological Constructs

PERSONALITY

Authoritarian thinking (2)
Boredom (1)
Depression (2)
Dominance (1)
Dogmatism (2)
Extroversion-introversion (4)
Guilt (2)
Moods (2)
Maturity (1)
Personality (94)
Personal constructs (1)
Temperament Traits (1)
Creative thinking (1)
Eating disorders (1)
Emotions (3)
Empathy (1)
Ego (1)
Mood enhancement (1)
Psychological function (2)
Power value orientation (1)
Stability (1)
Mood states (1)
Androgyny (2)
Satisfaction (2)
Sport psychology (1)
Mental toughness (1)
Self concept (62)
Self confidence (4)
Body image (7)
Self perception (1)
Self esteem (3)
Self acceptance (1)
Self image (1)
Self cathexis (1)
Body cathexis (1)
Movement concept (3)

GROUP DYNAMICS

Cohesion (4)
Leadership (17)
Relationship behavior (1)
Team achievement (1)
Cooperative Behavior (1)
Coaction (4)
Coactors (2)
Audience effect (14)
Congruence (1)
Psychological climate (1)
Interpersonal factors (1)
Burnout (6)

ANXIETY

Anxiety (50)
Arousal (4)
State anxiety (7)
Stress (14)
Trait anxiety (2)
Cognitive interference (1)
Competitive A-trait (1)
Competitive anxiety (1)
Cognitive (arousal) (1)

ATTENTION

Cue utilization (2)
Attentional style (3)
Attentional direction (1)
Attentional focus (1)
Attention (1)

ATTITUDES (toward:)

Physical Education (1)
Physical activity (12)
Sport (2)
Competition (1)
Achievement (1)
Success (1)
Athletics (1)

Note. The number in parentheses indicates number of studies in which construct was addressed.

MOTIVATION

Achievement (8)
Achievement motivation (5)
Aspiration (2)
Level of aspiration (8)
Persistence (7)
Sport Achievement (1)
Achievement conflict (1)
Fear of Success (2)
Goal setting (3)
Risk (5)
Threat of success-failure (1)
Avoidance behavior (1)
Competitiveness (4)
Need for achievement (5)
Locus of aspiration (1)
Attribution (9)
Causal attribution (2)
Effort attribution motivation (1)
Intrinsic motivation (1)
Motivation (29)
Expectations (6)
Learned helplessness (1)
Performance expectations (1)
Perceived ability-self (1)
Perceived ability (3)
Perceived competence (2)
Perception of success-failure (1)
Competence (1)
Movement satisfaction (2)
Committment to physical activity(1)
Perceived effort (1)
Perception (3)
Self efficacy (3)
Self actualization (8)
Control (1)
Locus of control (11)
Need satisfying characteristics(1)
Flow experience (1)
Runner's high (1)
Discomfort (1)
Endurance (1)
Fatigue (1)
Perceived exertion (2)
Pain tolerence (4)
Pain threshold (1)
Pain parameters (1)
Satiation tendencies (1)

BEHAVIOR MODIF/REINFORCEMENT

Behavior modification (1)
Modeling (4)
Feedback (2)
Unconditional regard (1)
Differential accuracy (1)
Intrusive behavior (1)
Punishment (1)
Reward (2)
Reinforcement (1)
Task behavior (1)
Nonverbal behavior (1)

AGGRESSSION

Aggression (14)
Assertion (2)
Assaultive behavior (1)
Hostility-guilt (2)
Spectator violence (1)
Violence (1)
Perception of violence (1)

INTERVENTION

Counseling (1)
Hypnosis (5)
Imagery (3)
Mental training (2)
Progressive relaxation (2)
Post hypnotic suggestion (2)
Meditation (2)
Mental tasks (1)
Mental rehersal (1)
Relaxation (9)
Suggestion (3)
VMBR (1)
Biofeedback (1)
Coping techniques (1)
Desensitization (2)
Stress management (2)
Self regulation (1)
Self talk (1)
Self monitoring (1)
Self reinforcement (1)
Mental exercise (1)

APPENDIX J. Age Breakdowns

AGE BREAKDOWNS

The following list contains all references made to age in the dissertation abstracts coded. Also presented are the classifications to which each was assigned. Some of the age references do not have a category. These decisions were made with each individual abstract based on all the information presented in the abstract, e.g., "elite" may have referred to young adult, college, etc., but was categorized according to all available information.

College (COLL)
Adult (YGAD, MIDA, OLDA)
3-5th grade (ELEM)
10 & 11 year olds (ELEM)
4-6th grade (ELEM)
High School (SRHS)
7-9th grade (JRHS)
13-15 year olds (JRHS)
12-17 year olds (JRHS, SRHS)
x=40.8 (YGAD, MIDA)
x=31.4 (YGAD)
27-57 year olds (YGAD, MIDA)
Junior high school (JRHS)
K-4th grade (ELEM)
Elite
21-45 year olds (COLL, YGAD, MIDA)
Middle age (MIDA)
9 & 10 year olds (ELEM)
60 or less (MIDA)
12-14 year olds (JRHS)
6-13 year olds (ELEM)
7-17 year olds (ELEM, JRHS, SRHS)
Preschool (PRES)
2nd & 3rd grade (ELEM)
7-10 year olds (ELEM)
14-17 year olds (JRHS, SRHS)
5th grade (ELEM)
Juvenile
Professional
x=32 YGAD)
6-11 year olds (ELEM)
10-18 year olds (ELEM, JRHS, SRHS)
4, 6, & 8 yearolds (PRES, ELEM)
9-12 year olds (ELEM)
8-10 year olds (ELEM)
Children (ELEM)
5th & 6th grade (ELEM)
9 year olds (ELEM)
6, 8, 10, & 12 year olds (ELEM)
4-6th grade (ELEM)

7-9th grade (JRHS)
4-8th grade (ELEM, JRHS)
17-33 year olds (SRHS, COLL, YGAD)
7th & 8th grade (JRSH)
55-89 year olds (MIDA, OLDA)
4th grade (ELEM)
6th grade (ELEM)
6th, 8th, and 10th grade (ELEM, JRHS, SRHS)
1st and 2nd grade (ELEM)
25-40 year olds (YGAD)
15-17 year olds (SRHS)
7-13 year olds (ELEM)
9-14 year olds (ELEM, JRHS)
10-12 year olds (ELEM)
8-12 and 13-17 year olds (ELEM, JRHS, SRHS)
Senior high school (SRHS)
21-61 year olds (COLL, YGAD, MIDA, OLDA)
23-40 year olds (YGAD)
11-16 year olds (ELEM, JRHS)
8 & 11 year olds (ELEM)
18-38 year olds (COLL, YGAD)
Graduate students (YGAD, MIDA)
8, 13, and 18 year olds (ELEM, JRHS, SRHS)
60-79 year olds (OLDA)
12-13, 16-17, 19 years old and older (JRHS, SRHS, COLL)
20-40 yearolds (COLL, YGAD)
20-50 year olds (COLL, YGAD, MIDA)

APPENDIX K. Sport/Physical Activity Categories

Sport/Physical Activity Categories

TEAM SPORT

Team sport (7)
Basketball (79)
Baseball (17)
Football (26)
Fieldhockey (7)
Hockey - ice (7)
Lacrosse (4)
Rugby (3)
Soccer (9)
Softball (12)
Volleyball (15)

EXERCISE/DANCE

Aerobics (7)
Endurance (2)
General exercise (2)
Isometric exercise (3)
Isotonic exercise (1)
Jogging (3)
Physical fitness (14)
Physical conditioning (1)
Rhythmic fitness (1)
Situps (1)
Sit and reach (1)
Walk (1)
Run/walk (2)
Dance (1)
Modern dance (1)
Running (7)

CLASS/PROGRAM

Activity class (3)
Body mechanics class (1)
Conditioning class (3)
Fitness class (4)
Movement lessons (1)
Physical activity class (3)
Physical education class (10)
Exercise program (5)
Strength training program (2)
Sports program (3)
Relaxation class (1)

INDIVIDUAL SPORT

Cross country skiing (2)
Archery (2)
Horsebackriding (1)
Bowling (5)
Badminton (4)
Boxing (1)
Cross country (1)
Cycling (1)
Diving (5)
Field events (1)
Gymnastics (26)
Golf (15)
Glider piloting (1)
Hanggliding (1)
Handball (4)
Fencing (1)
Judo (1)
Marathon run (1)
Martial arts (1)
Wrestling (16)
Weightlifting (3)
Racquetball (3)
Running long jump (1)
Hiking (1)
Rockclimbing (1)
Swimming (35)
Scuba diving (2)
Skydiving (1)
Sprinting (1)
Tennis (27)
Track & field (12)
Tumbling (3)
Riflery (1)
Skiing (3)
Sportscar driving (1)
Track (7)

Note. The number in parentheses indicates number of studies in which sport/physical activity was noted.

GENERAL ACTIVITY

Shuffleboard (1)
Athletic training (1)
Combative activity (1)
Bicycle ergometer (10)
Goal setting training (1)
High risk sports (2)
Imagery training (1)
Low risk sports (1)
Leasure activity (1)
Mental training program (1)
New games workshop (1)
Performance task (17)
Ropes course (High risk) (1)
Spontaneous play (1)
Survival swimming (1)
Teaching physical education (2)
Throwing (2)
Motor Task (77)
Standing broad jump (1)

TEAM & INDIVIDUAL SPORT

Team & individual sports (30)

APPENDIX L. Cross Tabulations for Context: Group Affiliation with Task; Group Affiliation with Sport/Physical Activity

	TASK									
	COG	FIT	FMT	GEN	GMT	MTB	PHY	SPT	NONE	TOTAL
LEVEL OF SKILL										
Athlete	3	9	8	7	3	1	8	22	119	180
Coach	0	0	0	2	0	0	1	6	39	48
Community	0	2	2	1	2	0	4	2	18	31
Handicapped	0	4	1	3	4	1	1	1	10	25
Other	1	2	3	2	1	0	5	3	34	51
Professional	0	1	1	0	0	0	1	0	5	8
School	0	1	0	2	0	0	0	2	13	18
Student	4	42	21	3	50	14	23	22	56	235
Not Applicable	0	0	0	0	0	0	0	0	3	3
TOTAL	8	61	36	20	60	16	43	58	297	599

Note. COG = Cognitive task, FIT = Fitness task, GEN = General task, GMT = Gross motor task, MTB = Motor task battery, PHY = Physiological measure, SPT = Sport specific task.

	LEVEL OF SKILL									
	ATA	COA	COM	HCP	OTH	PRO	SCH	STD	NONE	TOTAL
SPORT										
Class	2	0	5	4	1	0	0	24	0	36
Exercise	2	0	8	3	3	0	1	35	0	52
General	6	0	3	4	7	0	4	26	0	50
Individual	63	8	8	2	9	4	1	33	0	128
Motor Task	13	0	3	4	3	0	0	71	0	94
Not Applicable	0	0	0	5	1	0	2	9	0	17
Team & Individual	21	5	0	2	12	0	2	4	0	46
Team Sport	84	40	4	1	16	3	7	15	0	170
None	0	0	0	0	0	0	2	0	3	5
TOTAL	191	53	31	25	52	7	19	217	3	598

Note. ATA = Athlete, COA = Coach, COM = Community, HCP = Handicapped, OTH = Other, PRO = Professional, SCH = School, STD = Student.

APPENDIX M. Group Affiliation Categories

ATHLETES

Athlete (7)
Elite athlete (1)
Athlete dropout (1)
College athlete (116)
Elementary athlete (1)
Junior high school athlete (9)
Senior high school athlete (44)
Junior college athlete (1)
Olympic athlete (2)
Scholarship and Non-scholarship (1)
Combative athlete (1)
Elite tennis players (1)
Former athletes (1)
Highly-skill athletes (1)
Injured athlete (1)
Little league (1)
Marathon cyclers (1)
Marathon runners (1)
Noncombative athlete (1)
Professional golfers (2)
Professional soccer players (2)
Professional tennis players (2)
Professional ice hockey players (1)
Professional drivers (1)
Racers (running) (1)
Regular runners (2)

STUDENTS

College cadets (2)
Military college students (1)
Physical education majors (13)
Physical education students (77)
Reentry students (1)
Students (106)
Dance Majors (2)

COACHES

College coaches (26)
High school coaches (19)
Junior high school coaches (3)
Senior high school coaches (1)
Coaches club (1)

HANDICAPPED

Ambulatory students (1)
Cerebral palsey athletes (1)
Diabetics (1)
Emotionally disturbed (1)
EMR - public school (2)
EMR - institutionalized (1)
Mentally retarded (1)
Psychiatric patient (3)
Schizophrenic patient (1)
Delinquents (3)
Atypical social behavior (1)
Hyperactive boys (1)
Incarcerated delinquents (1)
Prison inmates (1)
Students in counseling (1)
Impulsive-reflective (1)
students

COMMUNITY

Adult recreation program (1)
Aerobics program (1)
Bowling league (1)
City field hoskey prog. (1)
Leisure groups (1)
Local businessmen (1)
Members - fitness group (3)
Members - swim program (1)
Public (1)
Recreationally disadvant. (2)
Fitness class (1)
Retirement community (2)
Summer sports program (4)
Swim program - sommunity (1)
Working adults (1)
YMCA fitness program (1)
YWCA fitness program (1)
Aquaphobics (1)

Note. The number in parentheses indicates number of studies in which group affiliation was noted.

SCHOOL RELATED

Athletic trainer (1)
College athletic directors & assistants (1)
Intramural participation (6)
Nationally ranked officials (1)
Officals (1)
Physical education department chairs (1)
Physical education teachers (3)
Sport psychology experts (1)
Teachers (2)
University faculty/staff (1)

OTHER

Highway patrol officers (1)
Hockey fans (1)
Novice (1)
Outwardbound graduates (1)
Sedentary (1)
Sport spectators (1)
Type A, Type B persons (1)
Women with breast cancer (1)
Games workshop (1)
Soccer camp (1)
Nonathlete (39)

APPENDIX N. Instrumentation Categories

INSTRUMENTATION CATEGORIES

SPORT PSYCHOLOGY INSTRUMENT

FREQ	TITLE OF INSTRUMENT
1	Allen & Nelson's Movement Satisfaction Scale
6	Athletic Motivation Inventory
1	Berlin's Motivation Q-Sort
1	Body Cathexix Scale
1	Borg's Psycho-Physical Category Rating Scale
1	Children's Attitude Toward Physical Activity
2	Coaching Behavior Assessment System
1	Coaches Behavior Description Questionnaire
1	Coaches Interaction Checklist
1	Coaches Rating Scale
1	Coaches Leadership Evaluation Questionnaire
1	Commitment to Physical Activity
1	Doudlah's Q-Sort for Movement Concept
1	General Expectations of Sport Success
1	Intra-team Competitiveness Questionnaire
1	Iso-Ahola & Allen's List of Needs
1	Johnson Sportsmanship Attitude Scale
7	Kenyon Attitude Toward Physical Activity
1	Lakie's Test of Competitive Attitudes
1	Leadership Scale for Sports
1	Leisure Activity Blank
1	Lowry's Sport Attraction Instrument
1	MacDonald-Tseng Sport Locus of Control
1	Marten's Competition-participation Relations Question.
1	Movement Satisfaction Scale
1	Peacock Achievement Scales in Physical Educ. Activitie
1	Personal Activity Inventory
1	Physical Education Attraction
1	Physical Activity Questionnaire
1	Rini Attitude Scale of Physical Education Activities
5	Secord & Jourards Body Cathexix Scale
2	Self-concept of Athletic Ability Scale
1	Simon & Smoll Attitudes Toward Phy. Activ. Scale
19	Sport Competitive Anxiety Inventory
1	Sport Envolvement Scale/School Involvement Scale
2	Sports Cohesiveness Questionnaire
1	Sport Participation Questionnaire
1	Sysler's Spectator Activity Rating Scale
1	Team Atmosphere Scale
2	Wear Peacock Attitude Inventory
1	Wyrick Motor Creativity
1	Zeigler "How do you rate yourself recreationnally"

UNPUBLISHED PSYCHOLOGICAL INSTRUMENTS

FREQ	TITLE OF INSTRUMENT
1	Activation-Deactivation Adjective Checklist
1	Approach-Avoidance Test
1	ASO-LPC
1	Asquiescence Response Scale
1	Assumed Similiarity Between Opposites
1	Authoritarian Attitude Scale
1	Barrett-Lennard Relationship Inventory
1	Behavior Avoidance Rating Scale
1	Berger Acceptance of Others Scale
2	Berger Acceptanceof Self Scale
1	Betts QMI Vividness of Imagery Scale
4	Bills Index of Adjustment Values
1	Binge Eating Inventory
1	Bredemeier's Revised PVD Test
4	Buss-Durkey Hostility Scale
1	Buss & Plomin EASI III Temperament Survey
1	Butler & Haigh Q-Sort
2	California F-Scale
48	Cattell's 16 Factor Personality Questionnaire
2	Cattell Children's Factor Inventory
3	Cattell Jr.,Sr. High School Factor Inventory
1	Causal Dimension Scale
1	Childrens Locus of Control Scale
1	Class Atmosphere Scale
1	Cognitive Interference Questionnaire I
2	Cognitive-Somatic Anxiety Questionnaire
1	College Test Anxiety Questionnaire
1	Competitive Attitude Scale
1	Conners Abbreviated Teacher Rating Scale
2	Davidson Adjective Checklist
1	Differential Emotional Scale
1	Edwards Social Desireability Scale
1	Edwards-Wilson Scales of Attitudes Toward School Subject
1	Empathetic Tendency Questionnaire
1	Extended Personality Attribution Questionnaire
1	Fear of Success Scale
7	Fielder's Least Preferred Co-worker Scale
1	French Test of Insight
1	Fries Inventory
2	General Anxiety Scale for Children
1	Glenn's Self Concept Inventory
5	Groups Atmosphere Scale
1	Hall's Modification of Robinson's Achievement Scale
1	Hall's Q-Sort
1	Hersey and Blanchard's LEAD-Self
1	Homonyn Word Association Test
2	Index of Adjustment & Values
1	Index of Graphic Constructiveness-Expansiveness
1	Intellectual Achievement Responsibility Scale
1	Kelly & BaerBehavior Rating Scale
1	Kogan-Wallach Opinion Scale

UNPUBLISHED PSYCHOLOGICAL INSTRUMENTS (continued)

FREQ	TITLE OF INSTRUMENT
3	Leader Behavior Descriptive Inventory
1	Legal Dangerousness Scale
2	Lynn's Achievement Motivation Questionnaire
1	Managerial Philosophies Scale
1	Mandler-Sarason Test Anxiety Questionnaire
7	Mehrabian Achievement Scale
1	Monaghan's version of The Repertory Grid
1	Mosher Forced Choice Inventory
2	Nideffer's Test of Attention & Interpersonal Style
1	Nowlis Mood Adjective Checklist
1	Objective Measure of Ego-identity Status
1	Osgood's Semantic Differential Technique
1	People Knowing Questionnaire
2	Perceived Competence Scale for Children
1	Perceived Parental Questionnaire
2	Personality Attributes Questionnaire
9	Piers-Harris Children's Self Concept Scale
1	Piers-Harris "The Way I Feel About Myself"
1	Present Affective Reactions Questionnaire III
1	Psychological Stress Inventory
1	Rizzo, House, Lirtzman Role Questionnaire
1	Rogers & Dymond's Self-Ideal-Ordinary Q-Sort
3	Rokeach Dogmatism Scale
1	SAAF Anxiety & Fear Checklist
1	Social and Medical Data
1	Sociometric Test
1	Task Motivation Scale
1	Task Structure Rating Scale
3	Taylor Manifest Anxiety Scale
1	Teacher Rating Scale
1	Test Anxiety Scale for Children
3	Test of Attention and Interpersonal Style
1	Trent Attribution Profile
1	Trodahl & Powell Dogmatism
1	Two Scales for Measuring Achievement
1	Wear Attitude Inventory
2	Work & Family Orientation Questionnaire
2	Zuckerman Sensation Seeking Scale

INSTRUMENTS LISTED IN MENTAL MEASUREMENTS YEARBOOK

1	Adkin-Ballif Animal Crackers
1	Affective Perception Inventory
2	Allport-Vernon-Lindsey Study of Values
1	American Home Scale
1	Attitudes Toward Women
1	Bem Sex Role Inventory
1	Bender Gestalt Test

MENTAL MEASUREMENTS INSTRUMENTS(continued)

FREQ	TITLE OF INSTRUMENT
1	Bipolar Psychological Inventory
13	California Psychological Inventory
1	California Test of Mental Maturity
2	California Test of Personality
1	Casseil Group Level Aspiration
1	Children's Personality Questionnaire
1	Clinical Analysis Questionnaire
2	College Self Expression Scale
1	Differental Aptitude Test
1	Eating Disorder Inventory
12	Edwards Personal Preference Scale
6	Eysenck Personaltiy Inventory
3	Gordon Personal Profile Inventory
3	Gough Adjective Check List
4	Guilford-Qimmerman Temperment Scale
3	Harvard Group Scale Hypnotic Suggestion
1	Iowa Test of Educational Development
4	IPAT8-Parallel Form ofAnxious Behavior
3	Jenkins Activity Scale
1	Jesness Psychological Inventory
2	Leadership Ability Evaluation
8	Levensons IPC Scale
2	Martinek-Zaichkowsky Self Concept Scale for Children
6	Maslach Burnout Inventory
3	Maudsley Personality Inventory
3	Minnesota Multaphasic Personality Inventory
3	Multiple Affect Adjective Check List
1	Myers-Briggs Type
1	Omnibus Personality Inventory
1	Pain Apperception Test
5	Personality Research Form
1	Piers-Harris Self Opinion
4	Profile of Mood States
6	Rosenzweig Picture Frustration Scale
6	Rotter's I-E Locus of Control Scale
1	Self Description Blank Scale
1	Self Rating Depression Scale
10	Shostrom Personal Orientation Inventory
48	Speilberger's State-Trait Anxiety Scale
1	Stanford Hypnosis Scale
34	Tennessee Self Concept Scale
3	Test Anxiety Profile
1	The Adjustment Inventory
4	Thematic Apperception Test

INVESTIGATOR-DEVELOPED INSTRUMENT

Activity Report Scale
Agents Who Have Motivated Participation in Sport
Anxiety Reduction Questionnaire
Aspirational Stability
Attitude Toward Physical Activity
Attitude Toward Athletics
Attribution of Performance Ability Scale
Attitude Toward Coach/Spectator
Best Team Ability Players
Body Image Questionnaire
Causal Attribution Questionnaire
Causal Attribution Scale
Coaches Ranking of Players
Coaches Performance Evaluation Questionnaire
Cohesion Inventory
Cohesiveness
Committment to Dance
Competitive Orientation Inventory
Court Aggression Rating Scale
Depressed Mood
Expected Score
Fear of Failure in Sports Activity Questionnaire
Frustrating Situation Questionnaire
Future Trends in Sports
Golf - Test of Attention
Imagery Exercise
Intenseness of Fear Questionnaire
Introversion-Extroversion
Leadership Style Analysis Questionnaire
Level of Aspiration
Level of Expectancies
Life Style Questionnaire
Likert Scale on Motivation
Locus of Causal Sport
Movement Scope Check List
Nonverbal Behavior Descriptor Questionnaire
Open-ended Situation Response Statements
Oral response of perceieved experience
Perceived Control
Perception of Violence
Perception of Behavior Scale
Perceived Evaluation of Ability
Physical Risk Ranking
Player's Rankings
Player's Rating Scale
Purge Mechanism Inventory
Q-Sort for Movement Concept
Q-Sort for Self Confidence
Questionnaire on Task Interpretation
Rating Coaches Competence
Ratings by Peers
Rating Scale of Attitude Toward Sport

INVESTIGATOR(continued)

Rating Scale of Coaches Competence
Response to a Scennario
Self Concept Measurement
Self Concept of Officials
Self Descriptive Categorization of Runner's High
Self Perception of Shysical Activity
Self Report Measure
Self Report on Aspirations
Self Report Inventory
Self Report on Anxiety
Self Report on Attribution
Self Report on Strength
Self Report onDefinition of Success-Failure & Achiev. Motiv.
Self Report on Aggression, Moral Concept of Sport, Attitude Toward Play
Self Report on Perceived Causal Attribution
Self Report on Perceived Exertion
Self Report on Symptoms of Stress
Self Talk Questionnaire
Semantic Differential
Semantic Differential - Coach
Semantic Differential - Self concept and SC in Basketball
Semantic Differential on Attitudes Toward Coach
Semantic Differential on "My Coach, My Ideal Coach"
Semantic Differential Assessing Attitudes Toward Field Hockey Concepts
Sociological-Psychological Attributes
Spectator Activity Rating Scale
Sport Achievement Affect Scale
Sport Flow Q-Sort
State Sport Confidence Scale
Stress Instrument Questionnaire
Student Oral Response
Subject Aspiration
Successful and Unsuccessful Athletes
Swimmer Anxiety Scale
Team Support
Trait Sport Confidence Inventory
Wrestling Selfreport Inventory
Casestudy
Content Analysis
Critiques
Duda Need For Achievement Scale
Interview
Questionnaire on Decisions
Value-Risktaking Test

APPENDIX O. Performance Measures Categories

PERFORMANCE MEASURES CATEGORIES

SPORT PERFORMANCE

AAHPER Tennis Test (1)
Archery Shoot (2)
Alternate Wall Toss (1)
Bowling Accuracy (1)
Basketball Timed Shoot (1)
3-Person Basketball (1)
Basketball Speed Pass (1)
French Short Serve Test (1)
50 Yard Swim (1)
50 Yard Dash (1)
40 Yard Dash (1)
General Performance Score (3)
Harris Basketball Test (1)
Mills Badminton Wallvolley Test (1)
100 Yard Swim (1)
Overhand Ball Throw (1)
Automatic Performance Analyzer (1)
Running Long Jump (1)
Soccer Skills Test (2)
25 Yard Sprint (1)
Striking Power (1)
200 Yard Swim (1)
220 Yard Dash (1)
Tumbling Skill Task (1)
Skill Level (1)
Shuffle Board Task (1)
Softball Throw (2)
Standing Broad Jump (3)
Fence Lunge (1)
Forward Roll Onto Balance Beam (1)
Knox Basketball Test (1)
Basketball Evaluation Instrum. (1)
Basketball Open-Closed Task (1)
Dyer Wall Board Test (1)
Diving Performance Measure (2)
Golf Performance Modeling (1)
Game Stats (13)
Decision Basketball (1)
Miller Wallvolley Test (1)
Red Cross Swim Test (1)

COGNITIVE TASK

Anagram Task (1)
Digital-Symbol Code Task (1)
Word Building Task (1)
Athletes Deliema (1)
Prisoners Dilema (1)
Geometric Construction Task (1)

FINE MOTOR TASK

Eye-hand Task (1)
Fine Motor Task (1)
Hole Type Steadiness Task (1)
Hand Steadiness Task (2)
Pursuit Rotor (10)
Reaction Time (7)
Response Time (1)
Tracking Task (1)
Video Game Task (2)
Linear Slide (1)
Pegboard Task (2)
Purdu Peg Board Task (1)
Rotometer (1)
Signal Detection (1)

FITNESS MEASURES

Balke Treadmill (2)
Billings Treadmill (1)
Taylor Treadmill (1)
Treadmill (5)
Humiston Treadmill (1)
Strength (1)
Bench Press (1)
Grip Strength (7)
Hand Dynamometer (3)
Arm Shoulder Strength (1)
Leg Dynamometer (1)
Fox Power Test (1)
Gross Pressure Test (3)
McCloy Strength Test (1)
Roger's Strength Test (1)
Strength Index (1)
Supine Press (1)
Ischpain Tolerence (1)
Pain Tolerence (1)
Shock Tolerence (1)
AAHPER Fitness Test (5)
Anaerobic Power (1)
CAPHER Fitness Test (1)
Fleishmann Fitness Test (2)
Organic Fitness Test (1)
Physical Fitness Index (2)
600 Run-Walk (1)
Physical Efficiency Test (1)
Cooper's 12-min Run-Distance (1)
Flexibility (3)
California Physical Perf. Test (1)

Note. The number in parentheses indicates number of studies in which the performance measure was noted.

GROSS MOTOR TASK

Ball Snatch
Bachman Ladder
Balancing Task
Coordination Task
Gross Balance Task
Motor Task Performance
Movement Time
Motor Maze Task
Obstacle Course
Stork Balance
Stabilometer
Simple Motor Task
Scoop Ball
Kinetic Visual Task
Dart Throw
Rebound-Ball-Roll-Accuracy Task
Roll Up
Ring Toss
Agility Test
Basketball Sit & Throw
Bar Hang
Chalk Jump
Hopscotch
Move Concept Instrument
Manuel Dexterity
Dodging Run
Isometric Flexion
Mazerun
Medicing Ball Put
Muscle Endurance Test
Complex Motor Task
Ohio Step Test
Shuttle Run
Vertical Jump
Vertical Hang
Zigzag Run
Ball Kicking
Throwing Task
Object Replacement
Speed Test
Sandbag Throw
Standing Broad Jump
Purdy Maze
Space Tilt
Novel Motor Task
Walk Path Task

PHYSIOLOGICAL MEASURE

Basal Skin Response
Biochemical
Blood Pressure
Body Composition
Body Estimation
Cardiovascular
Electromyog
EDG
Finger Temperature
Functional Capacity
Galvanic Skin Response
Heart Rate
Skinfold
Muscle Tension
MVO2
Oxygen Consumption
Palmer Sweat Test
Physiological Work Capac.
Pulse Rates
REspiration
Skinfold Measures
Skin Temperature
Somatotype
Urineepinp
Vital Capacity
VOTWO
Weight

MOTOR TASK BATTERY

Barrow Motor Ability
McCloy General Mte Perf.
McCloy General Mtr Capacity
Motor Battery Perf.
DeOreo Fundamental Mtr. Task
General Mtr Ability Test
Performance battery Perf.
Scott Mtr Ability Test
Battery Performance

GENERAL PERFORMANCE

IQ Scores
Judge Observation
Length in Hospital
Observation